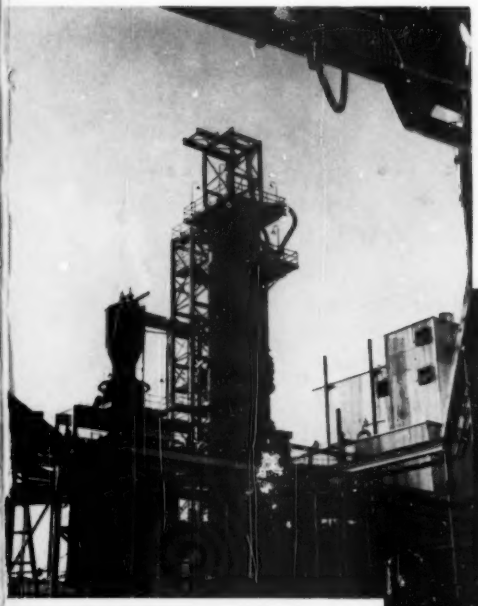
PULP & PAPER

January 9, 1961



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"Privileges of the Free Enterprise System"

What a subject! I've got lots of things to say on this one.

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1. The Bolton Award is open to all persons engaged in the pulp, paper or paper converting industry in the United States and Canada.
2. Confine your paper to 1500 words, type with double spacing on one side only of size 8½" x 11" sheets.
3. On the cover sheet **only**, include your name, the name and address of your mill, your job or title and home address.
4. Mail your entry postmarked before midnight **March 31, 1961**

to

The Secretary and Treasurer
Paper Industry Management Association
10 North Clark Street
Chicago 2, Illinois

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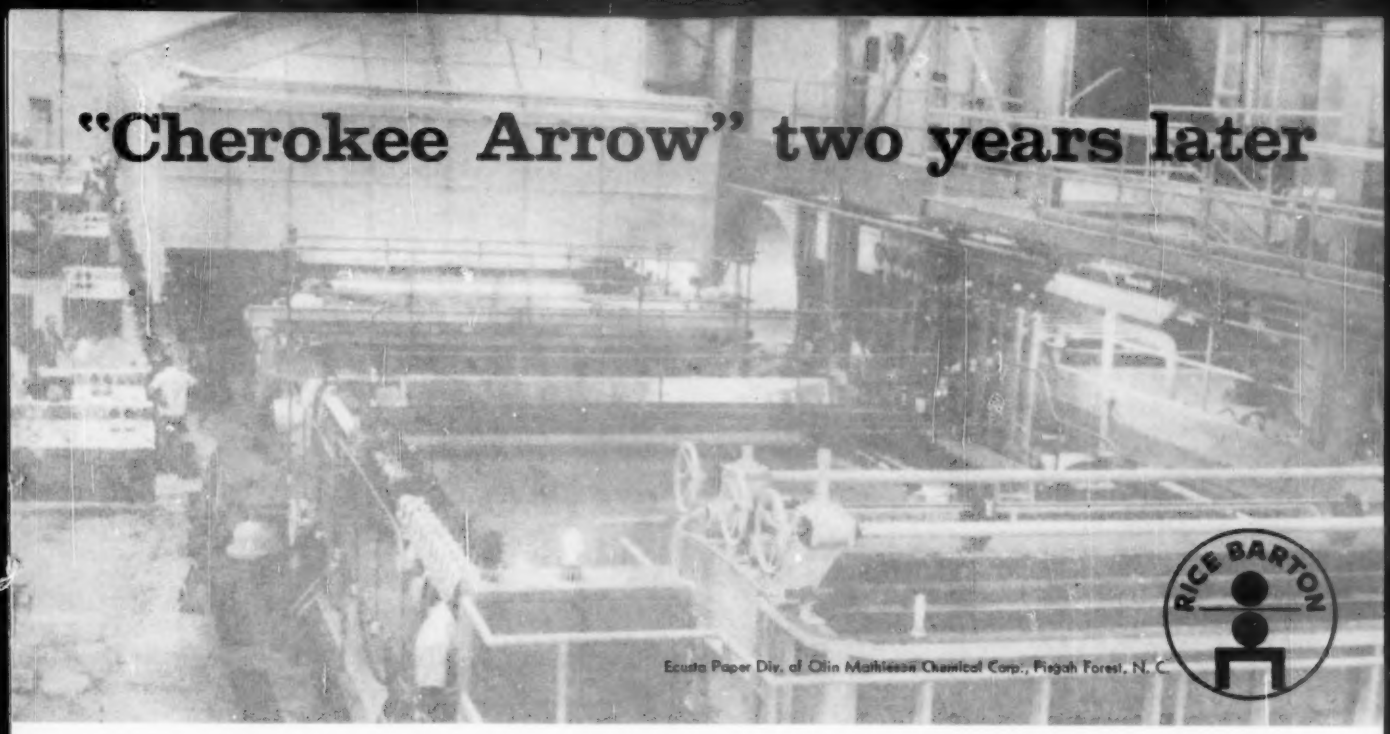
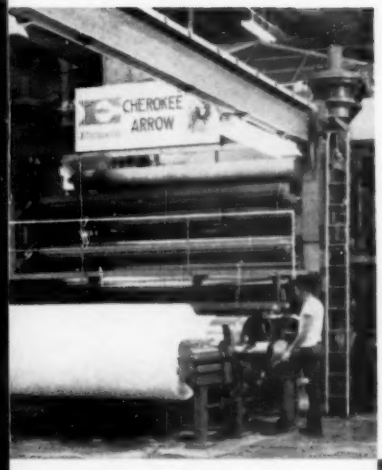
"Cherokee Arrow" two years later



Ecusta Paper Div. of Olin Mathieson Chemical Corp., Pisgah Forest, N. C.

RICE BARTON



Surpassing even start-up enthusiasm as the biggest, fastest machine for light weight papers, Ecusta's No. 10 has dramatically stepped up both the mill's capacity and its versatility. It is producing up to 55 tons per day of quality-controlled papers in a great variety of weights from 15 to 40 lbs.

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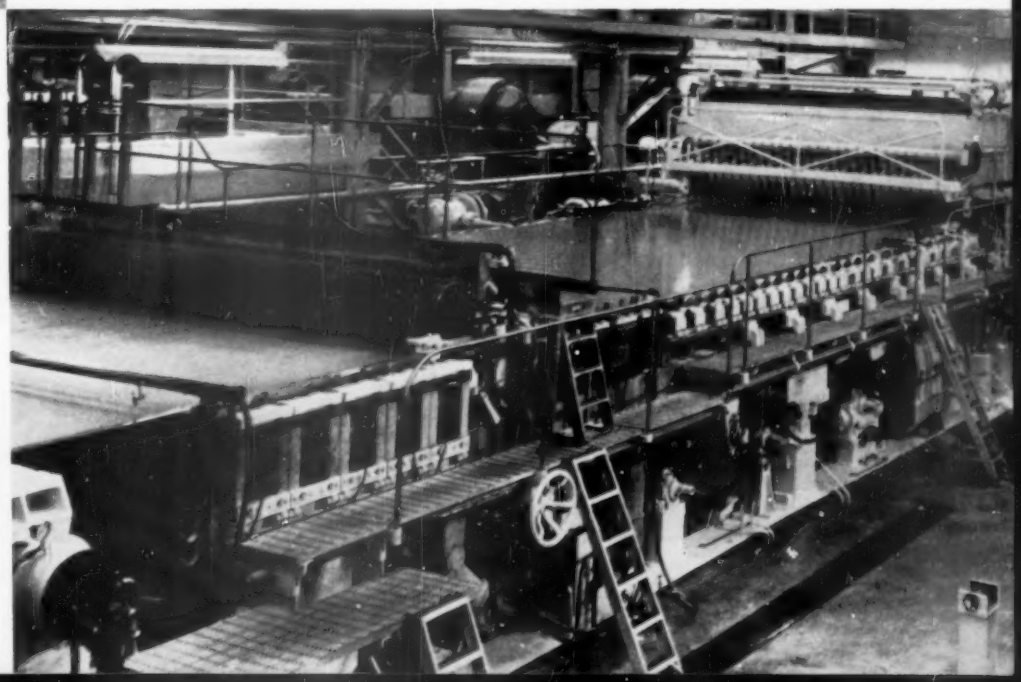
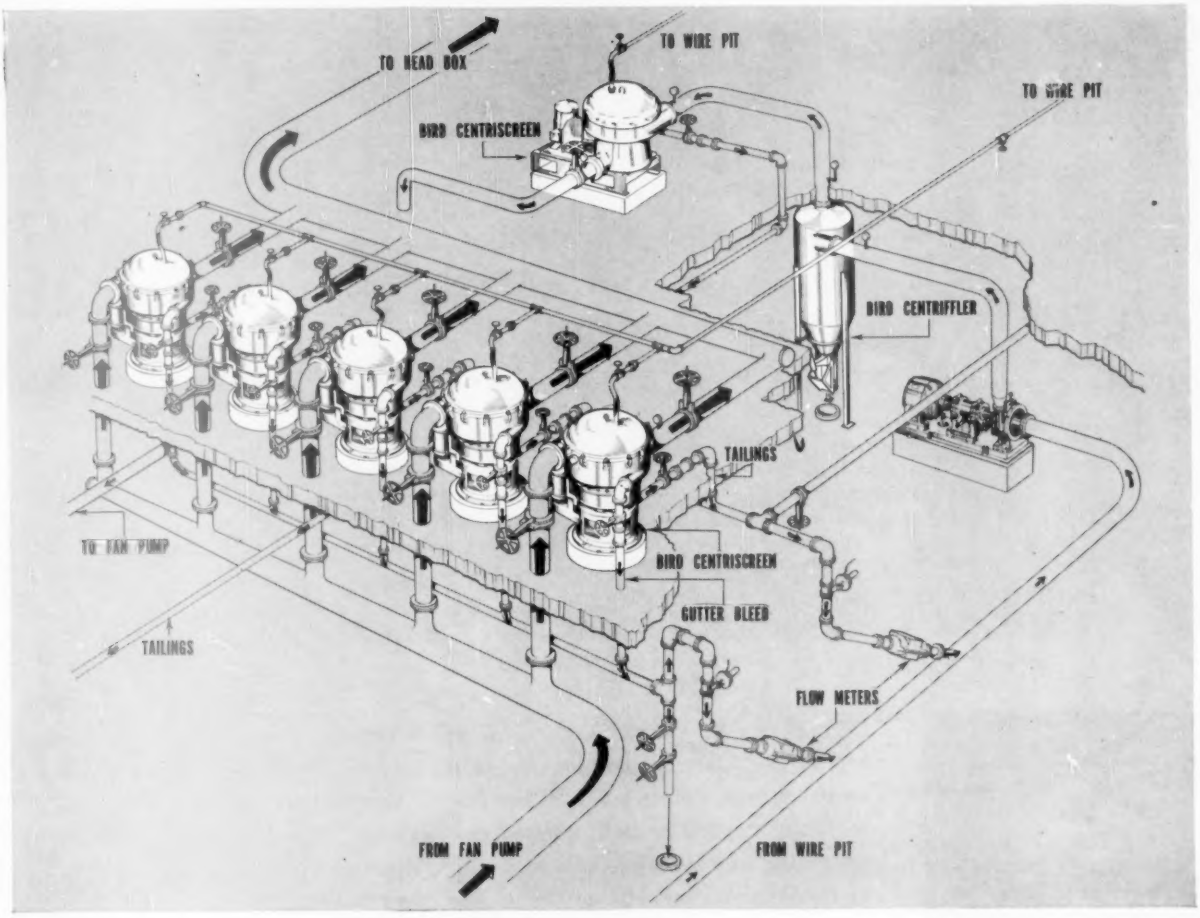
This performance-proven Rice Barton machine has a 182" removable fourdrinier, a 30' forming area. Running rate varies from 500 to 850 f.p.m. depending on the weight of the sheet being made. It is driven by a lineshaft through helical gears and differentials for ultimate in draw control. Three dryer sections have 30 high-pressure paper and 4 felt dryers with air-operated felt guides for controlling tension. Breaker stack with hydraulic top roll is located between first and second sections, horizontal size press between second and third. Moisture is controlled to correct for curl before sheet enters calender stacks and reel. Constant tension on winder is maintained by another differential drive.





The modern, three-stage dirt removal system, pictured, employs a battery of Model 14 Bird Centriscreens to deliver full tonnage to the headbox of a big, high speed paper machine. The tailings go to a Bird Centriffler which removes all the sand and grit so it cannot do damage to the machine wire. The accepts from the Centriffler are put through a Model 10 Centriscreen which delivers all the good fibre to the headbox and returns the rejects for reprocessing. The system pictured is handling 30,000 gpm.

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Whether yours is the kind and volume of stock that calls for a three-stage screening system such as this, a single, small screening unit or something in between, you *do* need modern, sturdy, compact, super-efficient Bird Centriscreen pressure screening units to do the job.

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NEWS DIGEST...

Unprecedented European paper boom fans interest in world trade as some countries report paper output up 10 to 17%. Market pulp exports saved the day for U.S. producers in 1960. World trade is major theme of American Paper & Pulp Assn's. Paper Week for 1961. See World Paper Outlook, page 9.

Until economic pattern firms up, caution will mark first quarter of this year. Profits, prices and overcapacity will be of major concern more than ever in 1961. Recent pulp price reductions didn't make sense according to some industry observers, but had to be done, they concede, to narrow gap between announced prices and under the table prices.

Paper and board production of 35 million tons is foreseen by U.S. Dept. of Commerce for 1961. Output in 1960 is estimated at about 34.5 million tons, paper and board. Pulp production, according to preliminary estimates, is about 25 million tons.

Increased federal action in water pollution abatement activities is expected following National Conference on Water Pollution in Washington last December, says one industry observer. Look for a flurry of legislation to be introduced on this subject in January, he says.

Expansion momentum continues as industry programs 3 million tons of new paper and board capacity in next three years . . . Green Bay Pulp & Paper Co. plans new linerboard mill at Crockett, Texas and Gaspesia Sulphite Pulp Co. makes long-expected announcement of new newsprint machine at Chandler, Quebec mill.

Scott Paper will fight FTC order to divest itself of three companies acquired through merger or acquisition in 1951 (Soundview) and 1954 (Hollingsworth and Whitney). Scott points out that FTC hearing examiner had twice ordered complaint dismissed.

International Paper will buy W. R. Grace bagasse pulp and paper mill in Puerto Rico as well as paper converting plants in Mexico. Both companies will also share equally in new bagasse mill under construction in Cali, Colombia.

"Is 'free' forest recreation obsolete?" asks Gordon Bonfield, v.p., Packaging Corp. of America. "Although few recreationists would like to admit it" he states, "there is increasing belief among resource experts that 'free' use of forests by recreationists will be replaced by some pay-as-you-go plan in the near future."

Paperboard capacity will increase by 1,002,000 tons in 1961. That's 741,000 tons from new machines; 216,000 tons from improvements. Biggest amount will be 340,000 tons for kraft linerboard and 244,000 tons for semichemical corrugating.

New paper capacity for 1961 is 593,000 tons. New machines will add 145,000 tons for fine papers; 54,000 tons for coarse; 51,000 tissue.

.....OUTLOOK

U.S.A. Outlook '61: Good

but leaders warn against overexpansion, lower profit margin

NEW YORK—Generally speaking, the outlook for pulp, paper and paperboard is good, but not too good. Why not? The industry definitely does have some excess capacity on its hands, more in some segments than in others. On top of this, it intends to bring in more than three million tons of paper and paperboard capacity in the next three years.

What's the answer? It's not necessarily higher operating rates because the industry has operated at about 90-91% capacity in 1960 and made a lower profit return. This will be the major problem not only in 1961 but until profits return to a better level.

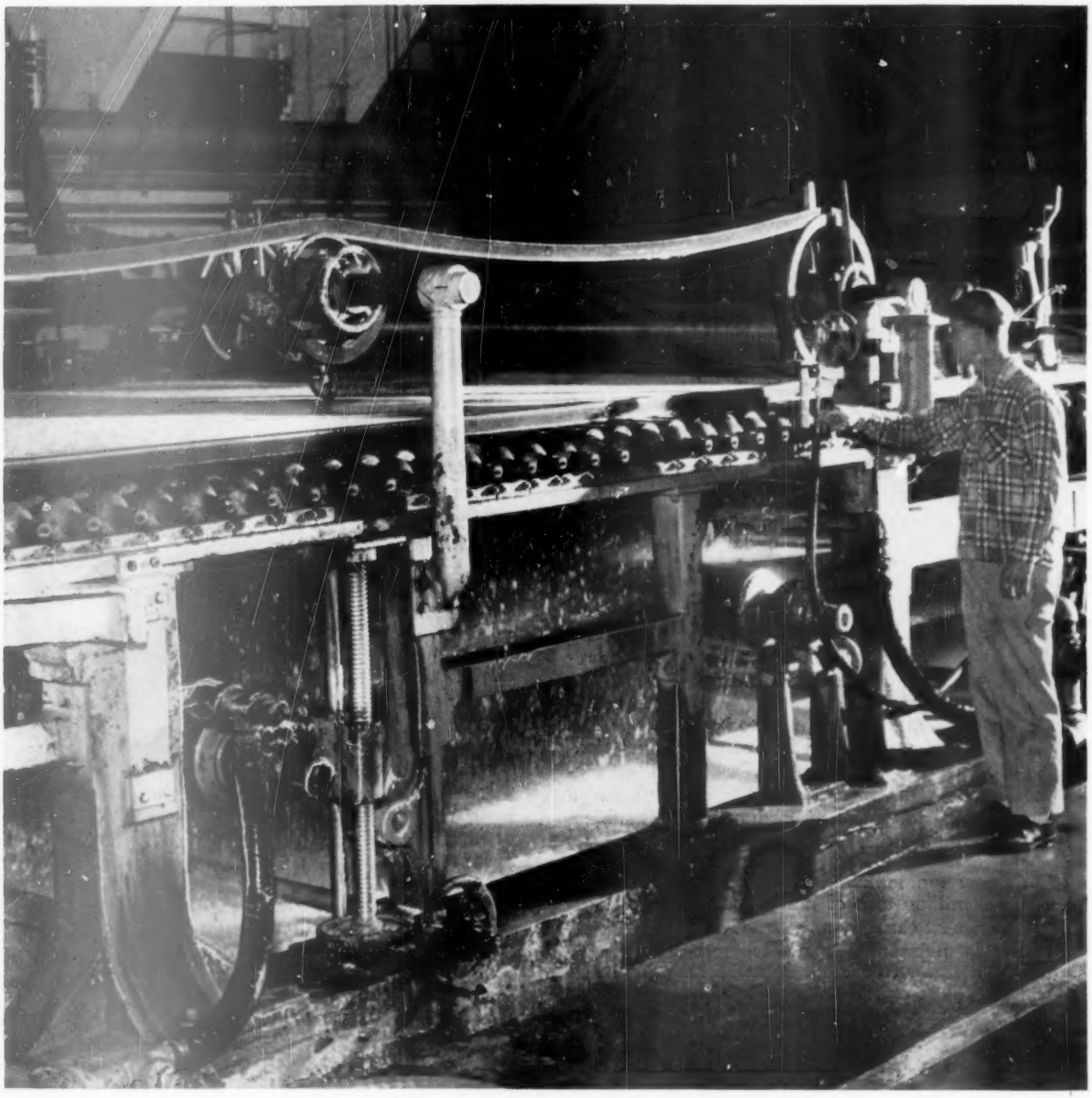
Uncertain U.S. Economy

in these early days of 1961 will put industry in general on a "wait-and-see" basis. Much hinges upon what the new President does and how well he succeeds in boosting the economy.

Recently APPA President H. E. Whitaker said that ". . . the public doesn't have a very high opinion of the earning power of the paper companies today."

One newspaper, reporting on an investment survey of changes in 41 major investment trusts, found there were no purchases in the pulp and paper industry. Nine funds sold their holdings, with five completely eliminating investments in this industry. Food for thought, isn't it ?

"Industry as a whole needs a greater capacity," says John H. Vogel, market research manager, Oxford Paper Co., "to recognize that there comes a time when it is wiser to refuse than accept business; to know that a consistent policy of maintaining a high rate of activity by accepting a large volume of business because it covers variable costs and absorbs some overhead, will, if pursued long



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THE picture proves our point. With B.F.Goodrich table rolls, there's no danger of water spray returning to the wire and spotting the sheet. That's because the mirror-smooth rubber covers on BFG rolls shed water instantly. Even rolls running at 1000 feet a minute need no deflectors.

The rolls are dynamically balanced to prevent whipping. They move evenly with the wire—and so do not develop high or low spots. The wire is kept absolutely level, the sheet that's produced is smooth and uniform.

BFG table rolls are built to last. Those you see above have been in continuous operation since 1939 at Rayonier, Inc., Fernandina Beach, Florida, helping produce chemical cellulose. In the 21 years, there's been no cover separation, no corrosion. The rolls haven't even needed regrinding.

Next time you buy a new Fourdrinier, or have one rebuilt, be sure that B.F.Goodrich Dukbak rolls are in your specifications. In the meantime, if you'd like more facts on BFG paper mill rolls, send for our free catalog. *B.F.Goodrich Industrial Products Co., Dept. M-946, Akron 18, Ohio.*

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PAPER MILL ROLLS

enough, destroy profits and bring industry to a point where its ability to command capital will be weakened."

While there may be some hesitancy from many sides as to the prospects for this new year, Peter W. Hoguet, president, The Econometric Institute, is definitely an optimist. He says, there will be no recession or depression in 1961, that the early days of the Kennedy administration may be spectacular, exciting and to some, upsetting. He sees a gradual pick-up in 1961, developing into a boom.

Finally, several industry leaders, queried by PULP & PAPER, hope for a better balance between production and capacity this year.

Pulp: Outlook hinges upon paper and board

NEW YORK—If paper and paperboard perform well in 1961, pulp should perform better, says James L. Ritchie, executive director, U.S. Pulp Producers Assn. Reason: pulp has relatively less capacity coming in during this year. Capacity is slated to increase from 29,823,123 tons in 1960 to 30,392,134 tons in 1961.

The U.S. pulp industry operated at about 89.4% capacity in 1960, produced an estimated 25,071,000 tons compared to 24,383,000 tons in 1959.

Exports saved day for market pulps last year. U.S. market pulp production was about 2,994,000 tons vs. 2,567,000 in 1959. The whole gain was in exports, which rose from 649,000 tons in 1959 to 1,119,000 tons in 1960. Domestic purchases were off 3% from all supply sources. Domestic sales were 1,875,000 tons compared to 1,918,000 in 1959.

No substantial improvement is foreseen at this date for domestic demand this year, says Mr. Ritchie. Some new capacity from Scandinavia which came on the line in the last half of 1960 may present a difficult situation for U.S.A. market pulps unless Europe continues its boom. There is a danger, and apparently some see such signs, that the boom in Europe may get tired.

Reason for pulp price reductions late last year, were explained in exclusive interview to PULP & PAPER by one industry spokesman. "Extent to which price cutting had been made was substantial," he says, "up to $25/ton and in substantial quantities, too." Companies that had been holding the line were losing their competitive position and considerable business. There was pressure to narrow the spread between announced market price and prices at which pulp was being sold below these levels.

"Which came first," he explains, "the break in paper or in pulp is a moot question. Tablet and envelope had weakened the whole structure. Nonintegrated mills, other than specialty mills, found it necessary to go out into the market and buy lower priced pulps.

"Overcapacity is the root of all the trouble," he concluded.

Paper: Production will do better in '61

NEW YORK—The paper industry will do better, production-wise, in 1961 this year than it did last. This is the opinion of several industry spokesman, interviewed by PULP & PAPER. Production will probably stay close to present levels for the first four or five months and then pick up a bit, says one observer.

Paper output since June 1960 ran about 6% below consumption. Inventories of paper wholesalers have been reduced a small amount. No reduction in rate of output is foreseen in the next six months. In the latter part of this year, if the economy picks up as we hope, says one expert, paper production will increase: (1) to stop inventory depletion; (2) to build up inventories and (3) to expand with the economy.

For 1961, an increase of 2-3% in production over 1960 is expected.

Although a new high in production and consumption of paper and board is estimated for 1961, the expected uptrend is less than the historic long-term average annual gains, reports the Business and Defense Services Administration, U.S. Dept. of Commerce. Production in 1961 is expected to be 35.0 million tons, compared with 34.5 million in 1960 and 34.0 million in 1959. Apparent consumption (production plus imports minus exports) in 1961 is expected to total 39.8 million tons, compared with 39.4 million in 1960 and 38.8 in 1959.

These 1961 estimates point to a production increase over 1960 of about 1.5% and a consumption increase of 1%. The average long-range annual growth factors are 3.8% for production and 3.5% for consumption.

The slackened pace in consumption as related to population growth will reflect a slightly smaller per capita consumption of paper and board for the year 1961 of 435 pounds, compared with the previous record of 438 pounds per person in 1959 and 1960.

Paperboard: Production at higher levels

NEW YORK—The "poorest boom on record" may not be so bad after all. Paperboard production, according to a preliminary estimate, may reach and surpass the 16 million tons mark, topping 1959's record 15,970,000 tons. Paperboard barrelled along in 1960 at about 91.5% capacity. Actually, some reckon this at a more realistic 88% because of capacity being added.

An excellent year for paperboard is forecast by Peter W. Hoguet, president, The Econometric Institute, speaking at a National Paperboard Assn's. meeting. "Paperboard production in 1961 will move to higher levels, reaching an estimated seasonally adjusted weekly demand of 339,000 tons by third quarter, 1961." He compares situation to 1959 when there was a major breakthrough in board production. Based upon Econometric's estimated demand of 328,000 tons in first quarter, 334,000 tons in second and 339,000 in third, paperboard demand may reach 16,500,000 tons.

Crazy-mixed up industry is how one observer describes paper-

Paper sculpture by Giuseppe Baggi

Pulp from Gottesman means...

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board. Looking at the paperboard industry's production record since 1947, some might be inclined to agree.

The paperboard industry, challenges Al Newburg, statistician for NPA, is not keeping pace and reflecting increased cost in its prices. "We are not making much more money now on 16 million tons production than in 1947 when we sold 9 million tons. Production is up 70% and we are just about making the same profits," he says.

This is the real big challenge, which not only paperboard, but the whole industry has to face. A study of some six large paperboard companies shows that their profits were 3.9%; yet 1958 and 1959 had an increase of 13.4% in sales. If you increase your volume 5%, you get a 9.2% increase in sales, says Mr. Newburg. If you cut your profit 10%, you have to increase your volume 50%.

"Opportunities unlimited," says Whitaker

Written especially for PULP & PAPER by HOWARD E. WHITAKER, Pres., American Paper & Pulp Assn.; Chairman of Board, the Mead Corp.

DAYTON, OHIO—All reports indicate that the paper industry, in all parts of the world, continues to show steady growth in volume and expansion in development of new services.

Made up as it is of many different types of businesses, it is difficult to generalize about the industry as a whole. But very few segments fail to show steady expansion in recent years.

Here, in the United States, we look forward to 1961 to show still further increase in demand and production over the past year.

Competition is extremely keen, and has developed higher quality levels and wider distribution than ever before, with the highest per capita rate of use in the world. Nevertheless, the constant stream of new products and constructions using paper bespeaks still higher rates in the future.

In Europe, the sustained advance in the economy has brought with it still greater demand for all types of paper and paper products.

The development of modern packaging and shipping containers in particular presents exciting possibilities in the future, now well underway in Europe and Japan and a number of other areas.

As this continues to spread throughout the world, the opportunities for paper to grow with trade and commerce is almost unlimited.

What other leaders see for '61

NEW YORK — Across the continent, PULP & PAPER editors queried industry leaders for their own outlook for this new year. Some preferred to be anonymous; others we quote by name.

Production capacity will be increased through expansion of existing plants, through replacement of old machinery. A top executive in the kraft products field sees a modest firming in demand for near-term future compared to recent low levels. But continued pressure on the market, resulting from entry of new firms and overbuilding by many elements in the industry, can be expected to cause low prices and reduced earnings, he says.

Although some of the 1960 business settling was plainly noted early in the year, particularly in the product fields in which price cutting occurred, some specialty phases, says one executive, experienced good-to-excellent market conditions. But these as well as the general product line encountered a marked decline during the fall months. This appeared to be the delayed arrival of a condition that previously had been experienced in some other parts of the country, says one West Coast paper executive.

"It has been our observations over several years that declines in business do not necessarily occur all over the country at the same time nor with the same degree of severity. Nor does it necessarily follow that a decline in business that occurs in the Midwest and on the East Coast will occur on the West Coast."

Regarding these business downtrends, he points out that they are usually experienced in the East before similar effects are discernible in the West. "If it becomes general, there is a lapse of two to six months from its start until it has affected industry in the West. Equally true is the fact that a pick-up in business usually follows the East-to-West pattern.

He anticipates short duration of recent, belated fall-off because recovery had already been experienced in other areas in his product field before the decrease became apparent in the West.

A top officer of one large integrated forest product firm says, "During the first half of the year we expect construction activity to remain at about its present level. We anticipate a small pick-up in construction activity during the last half. Demand for pulp and paper should be good throughout the year, but because of excess capacity, the climate within the pulp and paper industry will become even more competitive in 1961 than it has been during 1960."

Even though the trend toward more integration is neither rapid nor universal, several individual firms are undertaking such changes; pulp-paper firms moving into the hard products field; lumber-plywood groups branching out by the pulp-paper route. Hence the effect of these inter-relationships can be expected to increase during the foreseeable future.

By E. NORVAL HUNTER
President, The KVP Co. Ltd.

Most signposts point to a more rugged path for pulp and paper in 1961 compared to the relatively smooth route travelled in the past few years.

In spite of the fact that consumption of paper and paperboard continues to increase in most sectors of the world, new productive capacity

. . . Fluid Power news

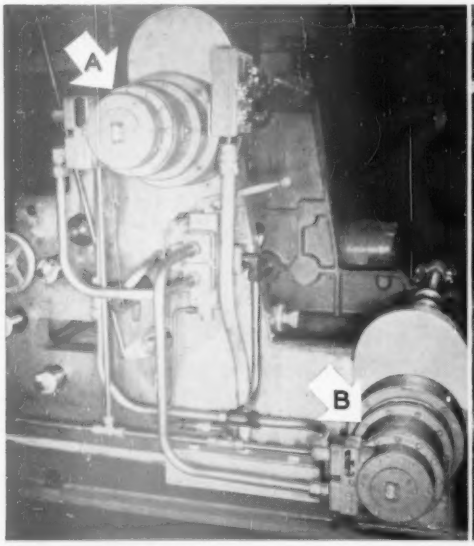
REPORT No. 12,300 HIGH PERFORMANCE WINDER DRIVES

From Oilgear Application-Engineering Files

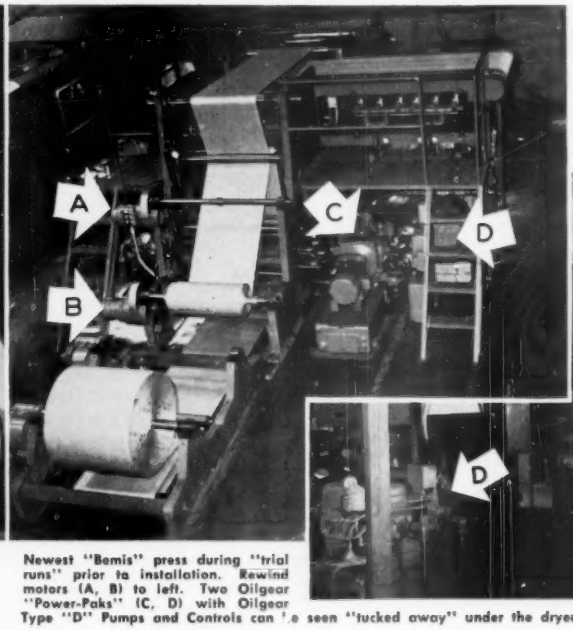
HOW OILGEAR PROGRESSIVE ENGINEERING PACES IMPROVEMENTS ON "BEMIS" MACHINES

CUSTOMER: *Bemis Bro. Bag Company, St. Louis, Missouri*

DATA: To efficiently produce the wide scope of paper, cloth, and polyethylene "Flexible Packaging" for which they are famous, "Bemis" designs and builds their own production machinery. Basically, "Bemis" machines are roll-fed, multi-color printing presses capable of very close register . . . operating from inching speeds of 15 fpm to running speeds of 400 to 1000 fpm. Press runs range from 1000 to 1,000,000 bags. Being roll-fed presses, winder drives and controls were a major problem, as ratios of 5:1 up to 10:1 from core to finished roll diameter are not uncommon. Paper widths vary from 10" to 56", with roll weights from 1000 to 2000 lb. "Bemis" specified that their winder drives must be compact; easy for shop, maintenance, and operator personnel to adjust, maintain, and understand. All electrical controls must be simple, with standard components preferred. Each machine to have one main control panel, and three or four remote, push-button panels — with some constant indication of load and tension as a desirable feature. Long, trouble and maintenance-free life was also of prime importance along with ease in installation.



Close-up of face-mounted, Oilgear Type "H" Fluid Power Motors (A, B), geared to rewind spindles of newest "Bemis" machine, shown center. Oilgear Type "D" Pump on "Power-Pak" (C) — center photo — supplies Fluid Power for rewind drive.



Newest "Bemis" press during "trial runs" prior to installation. Rewind motors (A, B) to left. Two Oilgear "Power-Paks" (C, D) with Oilgear Type "D" Pumps and Controls can be seen "tucked away" under the dryer section.

View "around-back" of new "Bemis" press dryer section, showing Oilgear Type "D" Pump and Controls on "Power-Pak" (D) which supplies Fluid Power to Oilgear Type "H" Motor (E) for main press drive. See "Note" below on Oilgear Pump (F), direct-coupled to tail-shaft of Motor (E).

SOLUTION: Through a program of constant improvement and engineering teamwork, Oilgear *Fluid Power* Drive and Control Systems have so successfully paced requirements for more efficient production equipment that "Bemis" plants in 16 cities now have 48 machines equipped with Oilgear winder drives. Dancer roll controls are used on 39 . . . 9 more recent installations have "*HYTAC SYSTEM" drives. Two newest machines (one shown above) have Oilgear Type "D" electrohydraulic servo controlled main press drives, and hydraulic servo controlled winder drives. One reason for this ever-increasing use of Oilgear "Any-Speed" drives has been clearly stated as follows: *"We put them in and forget about them . . . some have been operating for over 11 years without service or repair — many loaded to maximum capacity — others have had no oil change in five years"* . . . proof of the statement heard in all industry — *"For the lowest cost per year — it's Oilgear!"* One "Bemis" installation using a HYTAC SYSTEM winder drive handles 40 to 70-lb kraft stock 26" to 63" wide. This winder operates over a 13:1 ratio — from 3¼" diam. cores to 43½" diam. rolls — is limited only by interference on the machine. Of this HYTAC SYSTEM, "Bemis" states — *"Other types of variable speed drives could never do this . . . operating beyond our fondest hopes."*

*HYTAC SYSTEMS — An Oilgear Trademark

NOTE: *An unusual installation feature is partially visible on photo above. Oilgear Type "H" Fluid Power main press drive motor (E) is also direct-coupled to Oilgear Type "H" Pump (F) which supplies Fluid Power to an Oilgear Type "H" Motor — not shown — that drives the dryer fan.*

USER REPORTS — *" . . . exceptionally fine acceleration control . . . smooth creeping and inching speed up to maximum . . . exceptionally smooth running speed . . . are easier to adjust than other drives . . . require less space . . . pressure gage shows load while drive is in operation . . . maintain an adjustable tension from constant tension to constant torque."* "Bemis" — like other users — has found that Oilgear Drive and Control Systems give them constant tension, automatic tapering tension, stall tension, constant torque, automatic tapering torque, or a combination of tension and torque characteristics to meet their every production requirement.

For practical solutions to YOUR linear or rotary Controlled-Motion problem, call the factory-trained Oilgear Application-Engineer in your vicinity. Or write, stating your specific requirements, directly to . . .

THE OILGEAR COMPANY

Application-Engineered Controlled Motion Systems

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has more than kept pace with this rise in demand.

While there is every indication that demand will overtake the present supply potential, this will not likely occur in 1961. It therefore appears that for the year ahead, especially in the first half, the prime need of our industry is going to be for management to provide sound merchandising and sales.

By J. E. ALEXANDER
President and Gen. Mgr.,
Nekoosa-Edwards Paper Co.

We hope the paper industry will achieve a better balance between production and capacity in 1961. At Nekoosa-Edwards, we expect an improvement in sales volume. A marked improvement in earnings performance, however, cannot be expected until paper demand more nearly approximates paper capacity.

This supply-demand imbalance, of course, has created highly competitive market conditions. As far as our company is concerned, major efforts will be concentrated on greater quality emphasis, stepped-up new product development, and maintenance of our excellent distribution.

Several new products introduced in 1960, notably Nekoosa Mirra-Form, a special grade designed for the rotary forms printing industry, and Ardor Index, show much promise for the future, and we are vigorously pursuing these prospects so that we may avail ourselves of opportunities in 1961.

By CHARLES D. DICKEY, Jr.
President, British Columbia
Forest Products Ltd.

Virtually every industry expects even keener competition in 1961 than in 1960, and the pulp and paper industry is certainly no exception. Although the consumption of pulp and paper continues to grow at a seemingly inexorable rate, the increase in productive capacity is growing even faster.

The year 1960 has seen shipments of all types of market pulp throughout the world rise by close to one million tons compared with 1959. It cannot be expected that this rate of growth, which took place entirely outside of the United States, will be maintained in 1961.

World Paper in 1961: Trend on rise

Industry's boom continues; nations await GATT negotiations outcome

By ALBERT W. WILSON
Editor, PULP & PAPER

ZURICH—While the economy in U.S.A. slowed down at year end and showed no promise of a rapid comeback, the situation elsewhere in the world was quite different.

Europe felt a lashback from the American recession of 1958, but it was much more moderate than the generating events overseas from the U.S. This time there were no serious reactions in other countries.

The European paper industry is charging full steam into 1961. In the last months of 1960, the paper production was running from 10 to 17% ahead of the previous year. In both the United Kingdom and France it was as high as 17%. Even more phenomenal growth was taking place in Japan, Australia and New Zealand. India and South Africa, Latin America and Russia and other Communist countries pushed forward with high-geared programs for expansion of their paper industries.

In a recent tour of Poland, I saw one modern mill which started up no less than three big Fourdrinier machines—each one 190 inches wide—within seven months (March to October, 1960)—and a fourth machine is being ordered. Another Polish mill even bigger than this one is to be built in a few years. In Poland, an extremely poor nation, very few luxuries are available, even to the top executives and technical managers of the paper industry. Most of them own no automobiles, live in plain but neat apartments. Yet here, as was the case in my travels in Russia a year ago, a tremendous effort is being made to catch up with the rest of the world in paper. Despite these efforts, the Poles and Russians both concede it will take a long time even to match the most backward Western European nations in per capita consumption.

U.S. firms scout European market scene

In Western Europe, the growth pattern is widening and diversifying. More and more American firms—many in paper—are investigating possibilities. If these investments abroad may continue, in the face of the U.S.A. gold flight, a major problem is to be settled in the next months. But notwithstanding possible government intervention in one way or another, I can report that American paper industry officials are still looking over the European scene. Most of them are interested in the packaging opportunities and would like to discover a European Common Market partner experienced in dealing with European customers and European governments.

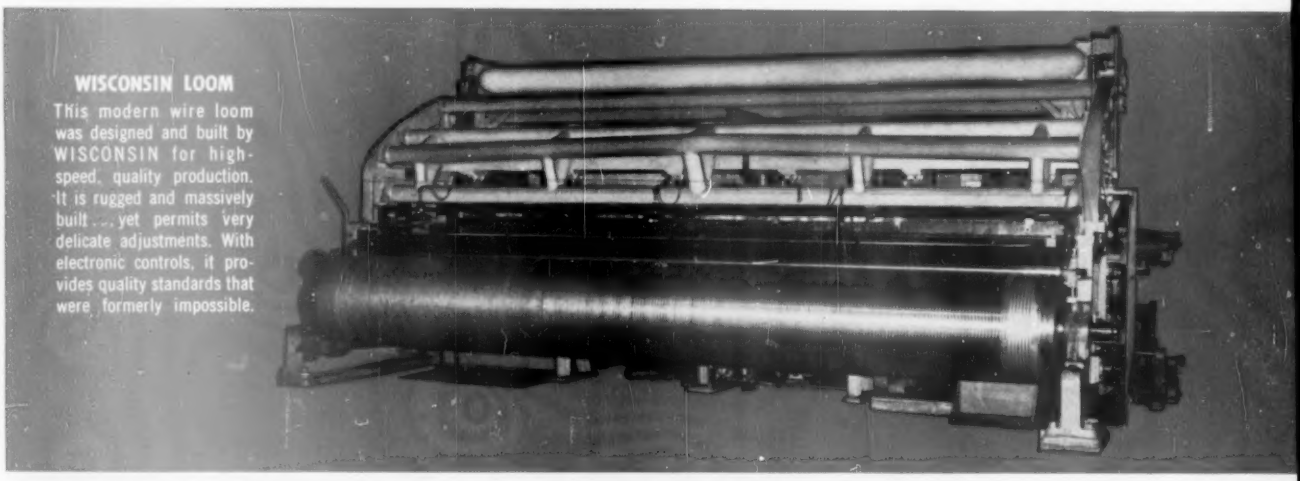
Backlogs of orders continue to pile up for paper mills in many nations of the world outside of North America. The Europeans and the Japanese, Australians and others—all have produced new records in 1960. When a 10 to 17% increase is mentioned, this must be compared to only 2 to 4 or 5% for most previous years—even the best post-war years in most countries.

Britain, West Germany, Russia and France each produced over 4,000,000 tons of paper in 1960, and yet all of them trailed Japan, which started in the late 1940's with a virtually completely demolished industry.

There have been few recent soft spots. In Italy, for example, linerboard is not quite as short in supply as it was. One southern U.S.A. mill was reported shipping 1,000 tons per week direct to Italy by way of the Mediterranean. But a linerboard boom, generally, is expected to carry on. In a matter of a few months, a big Swedish Cellulose Co. board mill in the far north of Sweden starts up. A few miles away the Swedish State Industries are hurriedly building another board mill. Two large ones in Finland are, as in the case of Sweden, designed for markets abroad.

There are serious shortages of labor in many countries. Also, shortage of engineers and technical men. Many raw materials and . . . **turn to p. 13**

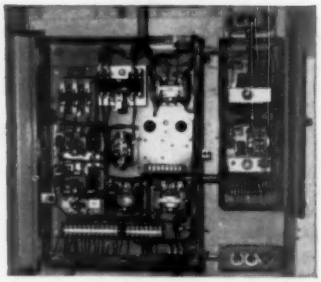
WISCONSIN WIRE WORKS
with the most significant change
...A COMPLETELY NEW AND FAR SUPERIOR



WISCONSIN LOOM
This modern wire loom was designed and built by WISCONSIN for high-speed, quality production. It is rugged and massively built . . . yet permits very delicate adjustments. With electronic controls, it provides quality standards that were formerly impossible.

UTMOST QUALITY ASSURED BY WISCONSIN RESEARCH, PERSONNEL, INSPECTION AND EQUIPMENT

LABORATORY INSPECTION—Quality control starts with raw materials. The WISCONSIN laboratory makes comprehensive physical and metallurgical inspections which follow every phase of manufacture in the production of this superior wire.



MODERN AUTOMATIC CONTROLS—This electronic control panel is typical of WISCONSIN'S modern controls which permit high-speed weaving operations while automatically maintaining the very close tolerances required.

WISCONSIN WIRE WORKS is equipped to give you the very best Fourdrinier wire that can be produced. Our specialized methods and machines have been developed in over 60 years of practical experience. Exacting controls in the laboratory and through every process follow the wire to completion. *WISCONSIN* craftsmen . . . using the most modern equipment . . . maintain constant supervision to assure you of utmost quality in every wire.

HELPS YOU CUT COSTS...
in papermaking wires in 27 years
FOURDRINIER WIRE

LEV-L-WEVE*

- **IMPROVES** *paper quality and surface.*
- **DECREASES** *paper production costs.*
- **LASTS** *much longer.*
- **CUTS** *wear on other equipment.*
- **PERMITS** *faster operating speeds.*

You can now produce a paper with *a marked improvement* in quality . . . with lower-cost production . . . with this great new development from *WISCONSIN WIRE WORKS!*

LEV-L-WEVE, a completely new type of Fourdrinier wire, is *flatter* and *smoother* than anything ever available before. It gives you a series of important new production advantages which definitely improve your paper quality.

What's more . . . *wire cost per ton of paper production can be cut substantially.*

The new LEV-L-WEVE wire is made possible through exclusive new production methods and special equipment originated by *WISCONSIN WIRE WORKS* to cut costs for the papermaking industry. *It is the greatest improvement since the twill weave was introduced over 27 years ago* . . . and, only *WISCONSIN* has it.

INCOMPARABLE SMOOTH SURFACE WITH LEV-L-WEVE

The exclusive LEV-L-WEVE wire is woven by an ingenious new method which fabricates the "warp" and "shute" wires on the same level plane. With LEV-L-WEVE you get an *incomparably smooth surface* on your product. Wire marks on the paper are greatly reduced, practically eliminating the two-sidedness of your sheet.

LEV-L-WEVE delivers a substantial improvement in the paper *formation*. It produces a better random fiber arrangement giving you a tougher, more uniform paper sheet. The result means better quality in your product.

COST-CUTTING BENEFITS

The use of this *WISCONSIN* wire makes cost-cutting possible in your production while increasing the quality of your product. LEV-L-WEVE wire provides greater *stock* and *filler retention* . . . and, at the same time, assures more rapid drainage. With better drainage, faster operating speeds are possible, and steam requirements are reduced.

The positive level surface of LEV-L-WEVE substantially *reduces wear* and thus *increases wire life*. The need for resurfacing suction boxes is substantially reduced because scoring is eliminated. There is no "freezing" on suction boxes . . . no "hanging up." Power is saved by greatly decreased wire drag.

GET THE COMPLETE STORY

Investigate *WISCONSIN* LEV-L-WEVE wire *now* . . . so you will get all these profitable advantages the next time you order Fourdrinier wires. For complete information call or write to your *WWW* representative *today*. *Patent Applied For.

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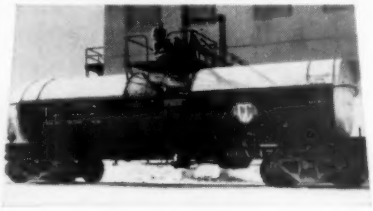
How will you have your alum?

. . . dry or liquid

. . . in bags, bulk, tank trucks or tank cars



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starts on p. 9 . . . chemicals are in short supply. It is in these areas, where the paper industries of Europe may be able to help the U.S.A. to reduce its trade imbalance and stabilize the dollar.

Scandinavia shows some signs of a change of pace which should be weighed along with the many evidences of continuing boom. Swedish government figures showed paper off 1% and pulp off 5% from the second to third quarter, indicating a slackening of orders. But there has been no slackening of the pace of expansion. Actually, for three quarters of 1960, Swedish paper production was up 15% and paperboard by 20%, the latter indicating packaging activity. Exports of paper and board are increasing.

Lack of capital is restraining European growth—likewise in Asiatic countries and Latin America. But in Europe it is felt more acutely, as the people are becoming more aware of paper, and are demanding more paper products. This is where American and British capital investments came into the picture. Bowaters and Reed of England are both moving as aggressively into the Common Market as American firms are. Tissues and household papers and also coated printing papers are increasingly in greater demand, along with packaging paper and board. In two or three years, a considerable market in Europe is foreseen for machine-coated paper.

How rapidly the European industries can grow is a question. Lacking capital, it cannot be accomplished too rapidly. New machines are discussed and planned for long periods before action is taken. Not so, in the Communist countries, where the ordering of two or three machines at one stroke seems to be quite a common occurrence. Yugoslavia, for example, has ten machines projected and orders for several were made simultaneously.

The concentration of groups of paper companies into large combinations is an interesting trend. There have been several such developments in France in the past several months. Béghin, Franck, Cellulose du Pin and others are now greatly expanded companies and must rank among the largest in Europe. The pressure is upon small mills, as competition grows with the new European paper "giants."

European pulp prices remain up; supply short

Developments in the cellulose market in American and Europe present an unusual contrasting picture. Very soon after North American mills reduced pulp prices in the U.S.A. market, the Scandinavian prices were increased in Europe for unbleached sulfite and sulfate—30 kroners per ton. These developments pointed up the basic difference in the two markets. Swedish market pulp mills have faced this year an actual shortage of unbleached grades, due to increased conversion to paper and board. In America there is still an over-supply of pulp, with production at new high records.

There were price changes for 1961 as reservation contracts stipulate that prices and deliveries for a coming quarter or half-year must be fixed one month ahead of the period.

In Europe, the quality fiber pulps from Scandinavia traditionally bring a higher price than North American pulps. And as 1961 began, many mills in Europe were looking essentially for top qualities in market pulps. This did not reject better grades from U.S.A., for example, but on the balance, better pulps have always come from the Scandinavian mills, where fiber qualities are unquestionably very high.

Paper mill directors in France and Germany, with whom I have discussed the market trends, expressed surprise over the news of American bleached pulp price reductions, which started just the day before Senator Kennedy's election. Yet, they have been aware of the capacity surplus in America which has existed for a long time, and the Europeans have known about various rebates granted in the U.S.A., but notwithstanding, the news was unexpected.

There was no immediate reason for Scandinavian price changes in the U.S.A. market, according to major Swedish suppliers, but eventually the moves there would "naturally affect" the Scandinavia prices, it was said.

The big question here in Europe was whether the North American moves would lead to increased American competition in the European market. I have been told by many pulp buyers in continental Europe that they must count on Scandinavia, not only for quality but also for a majority of their cellulose needs. But they say they will need pulp from North America, too—that Sandivania cannot hope to supply all of West Europe's requirements. In 1961 this is certainly true, as West Europe mills are operating at full capacity, with few exceptions, and pushing expansion. These mills admit quite freely that they look to American mills for a lower price, otherwise they are reluctant to change suppliers. But for overall European requirements, Scandinavia has moved rapidly to increase capacities to meet the major needs of its traditional world markets. But even with their new mills, many Scandinavians now feel they have been too slow.

Europe is already in the throes of an "earlier winter than usual." This means earlier ice formation in the inland Scandinavian seas and an earlier shutoff of their shipments. Another complicating factor has been the strikes in British ports, frequently delaying pulp deliveries to British mills.

But overall it looks like a much better year ahead in Europe and in other countries, too, for both Scandinavian and North American pulps. No one I have talked to expects any appreciable exports of pulp from Russia in 1960—"low quality for filler" is a phrase often used to describe the small shipments expected from the Archangel and other Soviet mills.

Trade potentials hinge upon GATT negotiations

All eyes of businessmen are on Geneva and the GATT conferences which have been going on there for weeks with 32 nations participating. At this writing they were still in the discussion stages of Common Market (Inner Six) exterior tariffs affecting America, Scandinavia, Britain, etc. Some lowering of pulp tariffs was assured. The next stage of negotiations at Geneva, which may run well into the spring months, will be bilateral negotiations among each of the 32 nations for lowering of tariffs.

Scandinavia is definitely laying its

a modern way
to get uniform
quality chips

O-KNI-CO
chipper knives
and
wear plates

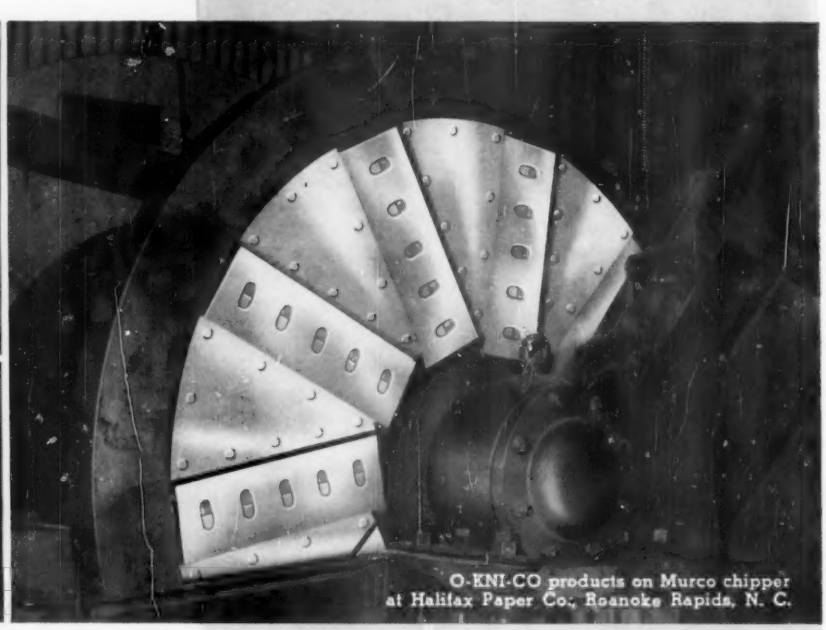
This combination is now available on all chippers made by the D. J. Murray Manufacturing Co. The Halifax Paper Co. of Roanoke Rapids, N. C., where Murco chippers are in operation, report O-KNI-CO Battle Axe chipper knives with O-KNI-CO wear plates consistently deliver high quality, uniform size chips.

Here's why: O-KNI-CO Knives of hi-carbon, hi-chrome steel are hardened and tempered to resist chipping, cracking, and shelling. They stay sharp longer. O-KNI-CO Wear Plates have a 3/16" hardened surface of ball bearing tool steel clad to a tough steel backing material. This combination eliminates breakage and increases wear. They have lasted 4 times as long as competitive plates, or up to three years without being removed. Equipping your chippers with O-KNI-CO hardened wear plates and knives is the modern way to assure continuous production of *uniform chips*. In addition, replacement and downtime costs are reduced to a minimum. They are made to fit all makes of sawmill and papermill chippers.

Avail yourself of the services of a qualified OHIO KNIFE CO. field service man. He will not only give you the complete story on O-KNI-CO Battle Axe chipper knives and O-KNI-CO wear plates, but perhaps make recommendations that will improve your present chipping operation. No obligation, of course. Write Dept. 84-F—for complete information.

O-KNI-CO chipper knives

O-KNI-CO wear plates



O-KNI-CO products on Murco chipper at Halifax Paper Co., Roanoke Rapids, N. C.

THE OHIO KNIFE CO. CINCINNATI 23, OHIO

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chips on a bet that the Common Market (Inner Six) and the European Free Trade Association (Outer Seven —soon to be eight, with Finland added) will be merged. Not a single Scandinavian company has made a move to build paper mills in the Inner Six countries, and this is evidence enough that it is confident of a larger trade union embracing mills in their own countries. Ultimately, it is considered likely that U.S.A. and Canada will be brought into the West European economic orbit in some degree, at least. These developments may come much faster than many Americans now anticipate. The European governments themselves and some of Europe's leading industries are very strongly behind this move.

It is only natural that the Scandinavian countries should minimize any threat of their increasing paper production to the paper mills of Britain and the Continent. I am sure the Scandinavians will do everything in their power to keep the paper markets stable. Why in the world would they risk the good will of companies to whom they sell pulp by competing with these same companies in paper to the point of usurping markets and cutting prices? It is quite evident that the Scandinavians—in their own best interest—will seek only "a share" of the expanding European paper markets. They will concede a proportionate share must go to German, French, British, and other Continental suppliers. It must be recognized, however, that these are boom times. The Scandinavians will meet the real test if there is a slackening in paper trade. This, I am sure, is the reason the Swedish industries are not finalizing the ultimate end use of their increasing capacities. Already published in PULP & PAPER are the new figures for increased tonnages in Sweden, revised upward only recently, but how much will be pulp and how much paper and paperboard is not decided —at least some hundreds of thousands of tons of new capacity can go either way in the next two or three years.

EFTA and common market
are widely credited with stimulating trade in Europe and this is no doubt true. At the same time these markets were, fortunately, started in boom times, or damaging effects may have been felt in some of the countries, especially in the paper trade. There have been some price reductions in Britain as a result of EFTA, but the prosperous trade conditions have cushioned them for British papermakers. Their costs have risen, just as costs are likewise higher in Scandinavia, and they are concerned very much over the pressure on prices.

But, for the most part, fluctuations in prices for the raw materials for paper and paperboard in Europe have been rare for the past several years. Steady policies of many leading cellulose manufacturers have contributed to this situation.

Big changes in newsprint
are coming. Sweden and Finland are building newsprint mills and will supply more of the world's needs. Canada's grip on this market will be very strong. But its competitors will be more active, especially outside the U.S.A. Canada also is losing markets in countries which are becoming self-sufficient in their newsprint needs. In nearly every country from Japan to South Africa and India to Latin America, more newsprint is being made on the spot. The new nations being created or nations which are becoming more independent, deem newsprint as a commodity which they should make for themselves. The FAO Conference in Tokyo, revealed the determination of Far Eastern and Asiatic countries to build up their own industries. This trend will continue. ■

In January 23 issue of PULP & PAPER: "Report on a Tour of Poland"—its paper mills and its papermakers, by Albert W. Wilson, Editor of PULP & PAPER.

Coming in '61: 1.5 million more tons

of new capacity for paper and board; 3 million tons in 3 years

PAPER AND PAPERBOARD will expand their capacity by some 1,596,000 tons this year; with some 1,002,000 slated for paperboard and 594,000 tons for paper. Pulp expansion is slated for an increase of 457,176 tons in the U.S., but some new market pulp mills in Canada can be expected to swell this new capacity by another 500,000 tons.

Rayonier Inc. is budgeting some $30 million on special capital investments, bulk of which will go to its new 85,000 ton/year paper pulp mill being built at Woodfibre, B.C. Mill will make a new kraft-type pulp, says Rayonier, which it is calling Fibrenier. A Rayonier spokesman says Fibrenier will be a top quality papermaking pulp offering balanced combination of high physical strength, high brightness and opacity and good formation. Western wood species will be used.

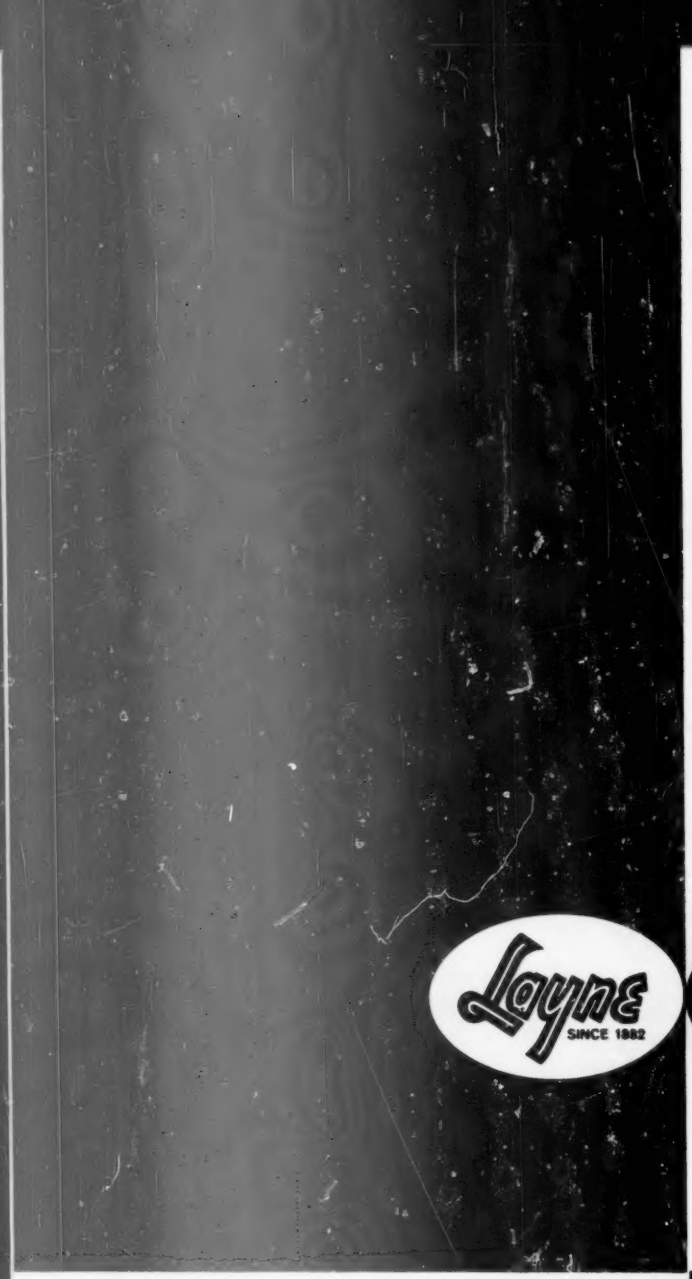
Green Bay Pulp & Paper Co. is reportedly planning a new linerboard mill at Crockett, Texas.

Brunswick Pulp & Paper Co. will spend $35 million to double plant capacity from 500 to 1,000 tpd. Additional pulp tonnage will be significant factor in Scott Paper Co's. and The Mead Corp's. long range requirements. They are equal owners in Brunswick. Important is that for first time, mill will make bleached board.

West Virginia Pulp and Paper Co. is spending $700,000 to improve its multiwall manufacturing operations at Wellsburg, West, Va.

Weyerhaeuser Co. has opened its new shipping container sheet plant at Lynchburg, Va., bringing to 22 number of shipping container plants Weyerhaeuser has in 17 states. Two new plants are under construction at Olympia, Wash .and Cloquet, Minn.

Fraser Cos. Ltd. is now bleaching its sulfite and kraft pulps with chlorine dioxide at its Edmundston, N.B. mill. Olin-Mathieson process is used in 6 tpd ClO_2 generating plant. Fraser Paper Ltd., subsidiary of Fraser Cos., is in full production with its new Pusey & Jones No. 7 paper machine



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SALES REPRESENTATIVES IN MAJOR CITIES

for light and medium weight papers from bleached chemical pulps. Machine is 234-in. wide, designed for 2,000 fpm speeds.

National Container Corp. has opened its newly expanded Los Angeles corrugated box plant, its biggest, with some 4 million sq. ft. of corrugated board capacity per day.

Boise Casade has put into operation its corrugated shipping containers plant at Golden, Colo., near Denver. Plant is third of its kind in Boise Cascade Container Corp's. chain. Others are at Wallula, Wash., and Burley, Ida., while a fourth is being equipped at Sunnyvale, Calif.

Hinde & Dauch, Ltd., subsidiary of St. Lawrence Corp. is constructing corrugated shipping container plant in Moncton, N.B.

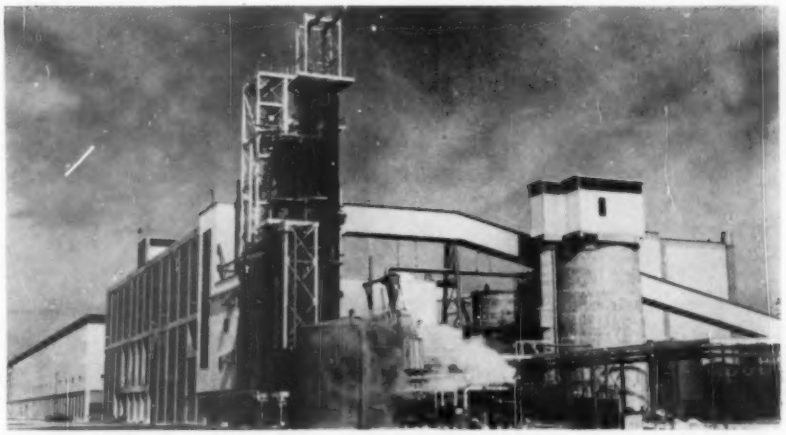
Overseas, **Reed Paper Group** has joined as an equal partner with La Centrale, General Finance Corp. of Milan, one of Italy's leading financial and industrial management firms, SICAR S.P.A., with initial capital of about five million pounds sterling. Reed-La Centrale will acquire paper and board enterprises in Italy. Other U.S. paper companies are reportedly investigating possible combination in which they might join in Italy. Scott Paper Co. and Bowaters of England are equal partners with Cartiere Burgo, Italy's biggest papermaker.

Continental Can swings into production

of bleached foodboard at new 350 tpd pulp and paper mill

AUGUSTA, GA.—This flexible mill is designed to use hardwoods and softwoods, kraft and cold soda pulps; bleached and unbleached, coated and uncoated foodboards. It is first bleached board mill put on stream by Continental Can Company.

Mill will size-press, coat and follow with two on-machine Champflex (trailing blade type) coaters. Reversing traditional trend, Continental Can has tailored its whole mill operation to coater. Look for some radically new developments in coating here. For instance, Continental Can's specialist, Joseph T. Loomer, recently obtained patent "by which a paperboard base of relatively low color may be coated. Invention provides a process and apparatus by which ground coat of high solids content mineral coating composition is applied by roll coating with deliberate or, at least, inevitable formation of a well defined pattern. Ground coat is then dried and over coating of relatively low solids coating content mineral coating is applied by doctor coating."



NOW ON STREAM, Continental Can Co.'s Augusta, Ga. mill.

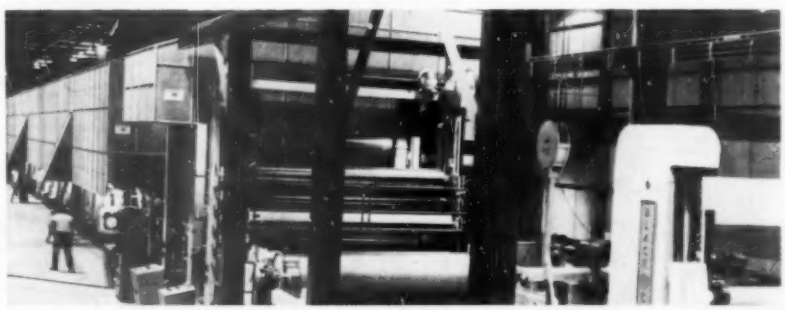
The Augusta mill project was headed by C. S. Heustis, gen. mgr. of bleached board development for the Gair group. William L. Schnorbach is plant mgr.; Raymond McCormick is gen. supt.; Charles Ray is pulp mill supt.; Brookshire Moore is paper mill supt.; Harold White is power plant supt. and Vernon Bodenheimer, tech. dir. Plant accountant and office mgr. is W. L. Coker; personnel supervisor is George Clossay and Robert Ervin is dir. of engineering and maintenance.

See special report page 44.

Fibreboard adds 3rd board machine at Antioch

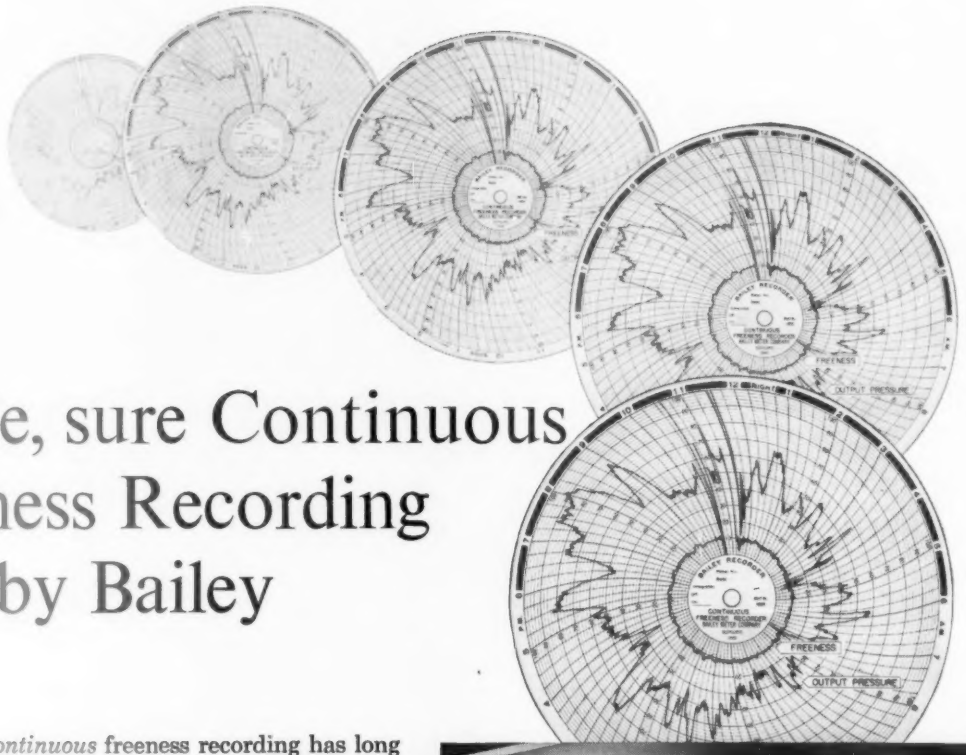
ANTIOCH, CALIF.—The San Joaquin Pulp and Board mill of Fibreboard Paper Products Corp. is now in full production with its new 172-in. wide Black-Clawson Fourdrinier machine. The new machine brings annual capacity to 200,000 tons. Kamyr kraft continuous digester, 100-ft. high with 5,700 cu. ft. capacity, is used.

Paper machine has two headboxes by Valley, designed for speed range of 250 to 1500 fpm and on 18-lb. to 90-lb. natural kraft linerboard. PULP & PAPER will present a special report on this mill soon.



KRAFT LINERBOARD CAPACITY is boosted 72,000 tons at Fibreboard Paper Products Corp. by addition of new Black-Clawson paper machine.

Now...proved in continuous operation...



simple, sure Continuous Freeness Recording by Bailey

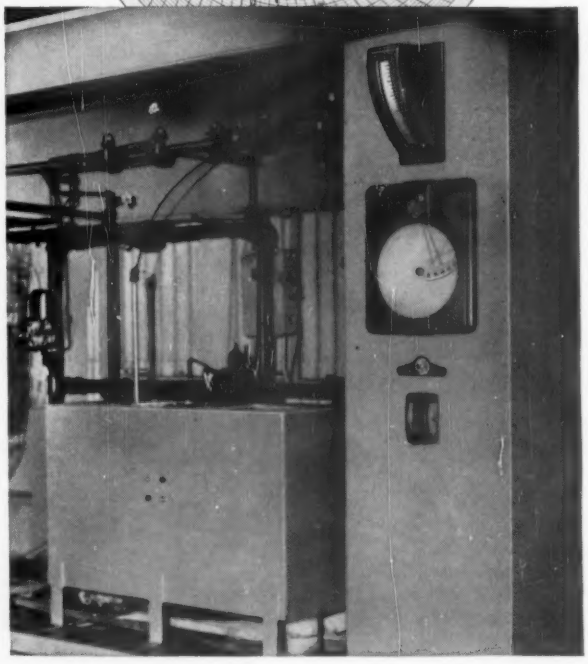
Dependable, *continuous* freeness recording has long been an objective of the pulp and paper industry.

Today it is a fact.

The Bailey Continuous Freeness Recorder, based on simple principles and utilizing equipment well-known by the pulp and paper industry, now provides a means for dependable, continuous measurement of freeness, proved in successful, continuing service for more than a year.

Its operation enables more accurate control of pulp stock characteristics...automatic control of refiners and jordans for sustained product quality. Performance is trouble-free . . . maintenance, negligible. Your Bailey Engineer will be glad to give you details. Call your nearest Bailey District Office, or write.

P151-1



Bailey Continuous Freeness Recorder in operation at a Southern newsprint plant.

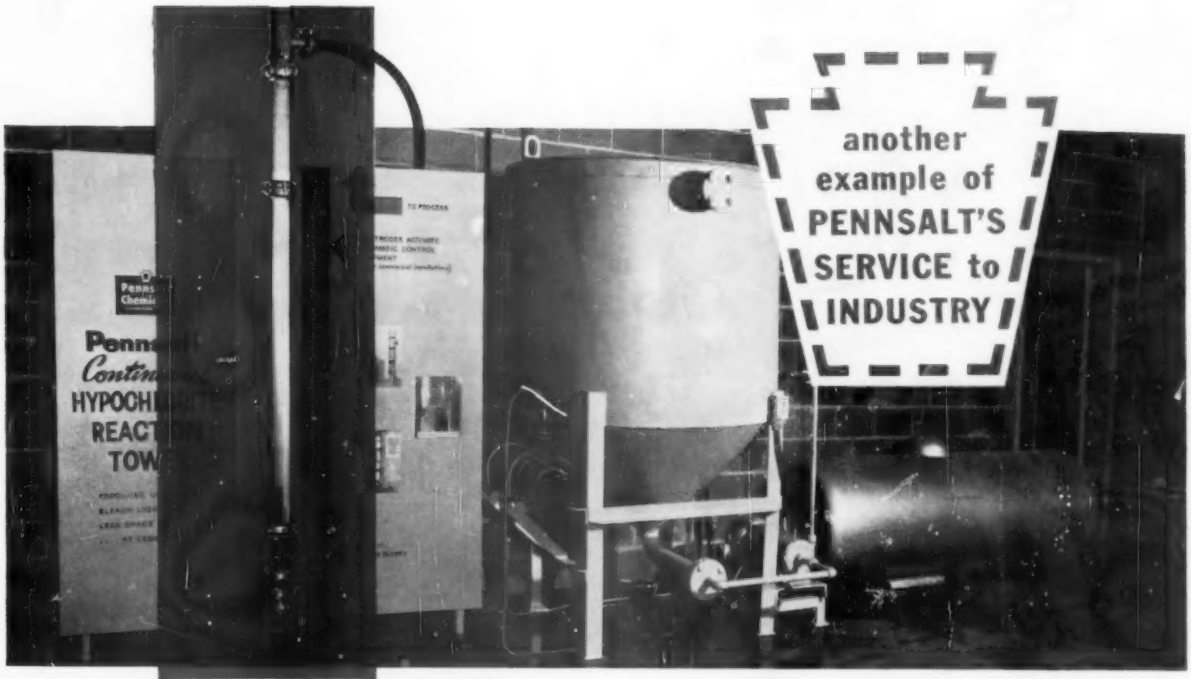
PULP AND PAPER DIVISION

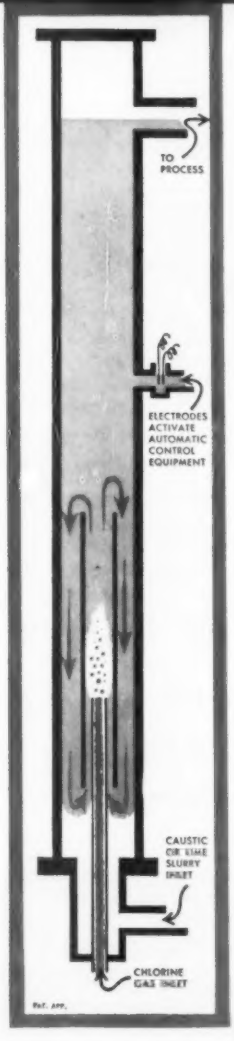
BAILEY METER COMPANY

1037 IVANHOE ROAD • CLEVELAND 10, OHIO

In Canada — Bailey Meter Company Limited, Montreal

BAILEY METERS





A pilot plant was used by Pennsalt Engineers to study basic ideas of continuous sodium and calcium hypochlorite preparation.

PENNSALT CONTINUOUS HYPOCHLORITE REACTION TOWER

PRODUCES UNIFORM BLEACH LIQUOR FASTER, IN LESS SPACE, AT LESS COST THAN "BATCH" SYSTEM

The very satisfactory systems now offered were developed and tested under plant operating conditions, through the cooperation of mills which installed continuous systems. Capital expenditure, space, and labor can be saved in a new mill. Conventional batch plants can be modernized with labor saving and more efficient chemical usage by superimposing the continuous equipment on the present system.

IN YOUR PLANNING . . .

Pennsalt Technical Service engineers can help you in your initial planning of bleach facilities, selection of handling systems, and safe handling of chemicals. Phone or write PENNSALT CHEMICALS CORPORATION for Technical Bulletins.

20,000 TO 250,000 GALLONS BLEACH LIQUOR PER DAY . . .

Pennsalt Reaction Towers now installed at various mills, are producing from 20,000 to 250,000 gallons of bleach liquor per day. System brochures, flow diagrams and sketches are available to fit your particular needs.

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Offices and Plants:
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PENNSALT CHLORINE and CAUSTIC SODA are made at Calvert City, Ky., Portland, Ore., Tacoma, Wash., Wyandotte, Mich., and Mexico City

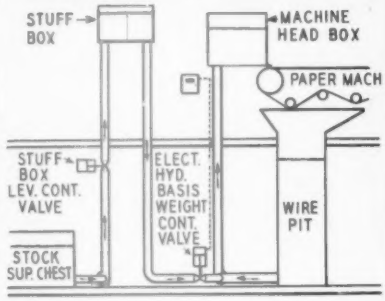
Pennsalt Chemicals
ESTABLISHED 1850

EXACT and CONSTANT

BASIS WEIGHT CONTROL

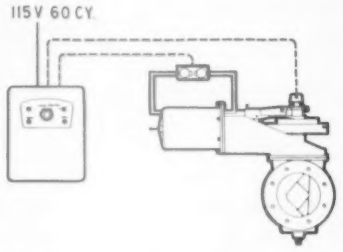
with the DeZurik ELECTRIC-HYDRAULIC VALVE

Application



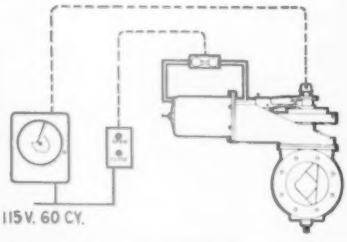
The Electric-Hydraulic Actuator mounted on a DeZurik Vee Port Valve, provides greater accuracy and repeatability than is obtainable with a stuff gate.

The diamond-shaped orifice of the DeZurik Vee Port Valve guarantees constant flow without plugging.

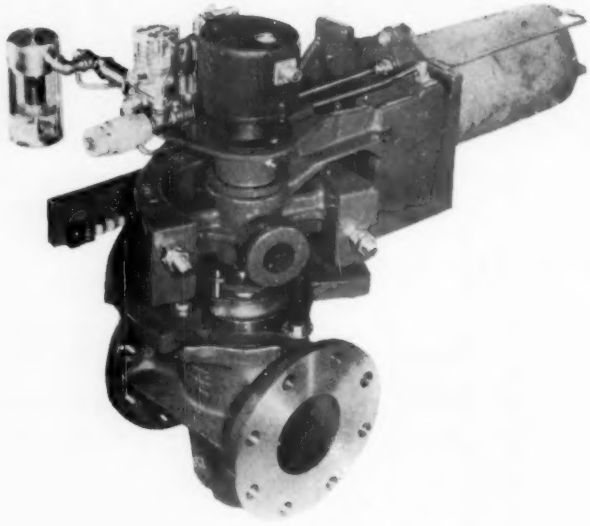


A manual control station can be furnished which will provide accurate control of the valve.

With this station the valve can be set in 2000 repeatable positions.



A push button station can also be used in conjunction with an electronic recording instrument. Because valve position is a function of basis weight, changes in basis weight are recorded on the chart.



Now—at last—IT IS POSSIBLE TO DELIVER AN EXACT AND CONSTANT AMOUNT OF STOCK TO THE FAN PUMP! The DeZurik Precision Electric-Hydraulic Basis Weight Control Valve provides completely stable control with excellent sensitivity and repeatability.

When controlled by a Beta Gage, this DeZurik Valve will provide the ultimate in fine control. The electrical signal from the Beta Gage is instantly translated into positive action of the hydraulic cylinder without the backlash of electric motor drives.

Other features include completely adjustable speed, positive readout of valve position, provision for manual operation.

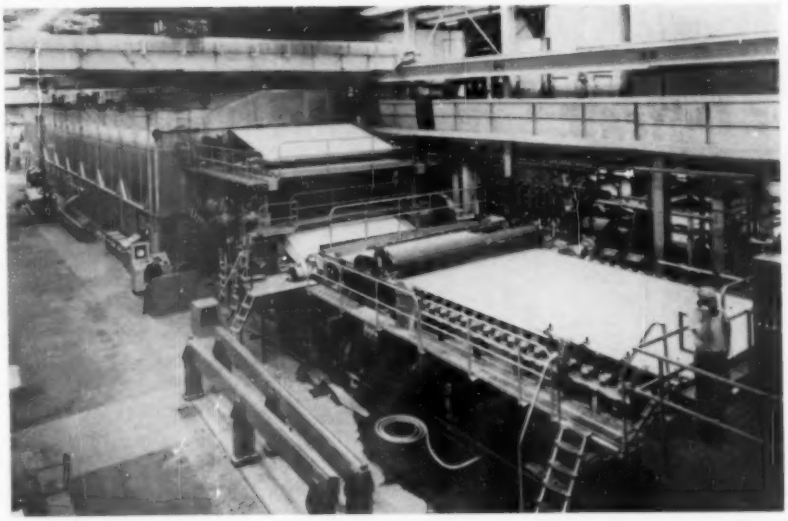
Write for more information.

DeZURIK CORPORATION
SARTELL, MINNESOTA

Nekoosa-Edwards puts 11th machine on line

NEKOOSA, WIS.—Nekoosa Edwards has started up its largest production unit, a 195-in. wire, bond and printing papers Beloit machine, called The Charles H. Reese, in honor of its manufacturing vice president, who has headed papermaking and development activities for 25 years.

Some machine facts: 97-ft. long wire; horizontal size press for size and light coatings; designed for operations in 1500 fpm range; mechanical differential drives requiring no belts; Ross totally enclosed hoods; Foxboro stock proportioning system for three stocks using magnetic flowmeters; similar system for adding color, clay and alum; Accu-Ray unit, between calender and reel automatically controls basis weight. Appleton winder has 186-in. face drums, footage counter, hydraulic roll-lowering table, oscillating unwinding stand.

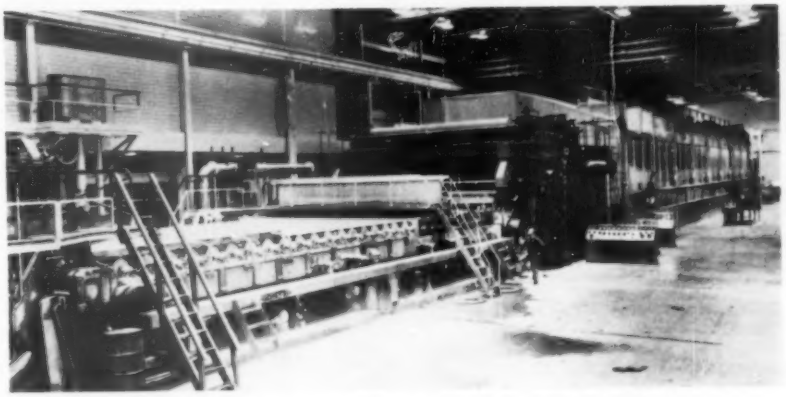


NEKOOSA-EDWARD's The Charles H. Reese, 100 tpd fine paper machine

Fraser boosts bond paper capacity with No. 7

MADAWASKA—Here in Maine's northernmost town, Fraser Paper Ltd.'s new 234-in. wide No. 7 bond paper machine, built by John Inglis Co. Ltd., is now producing more than 100 tpd. Maximum speed design is for 2,000 fpm. Grade range is light and medium weight papers from bleached chemical pulp supplied by its parent mill across the St. John River in New Brunswick, N.B., which has just added chlorine dioxide bleaching for kraft and sulfite pulps.

Centralized stock preparation and proportioning, designed by Foxboro, is carried to a further degree than similar installations. Machine has Ross totally enclosed hood.



NEW BOND MACHINE at Fraser Paper, Ltd., Madawaska, Maine.

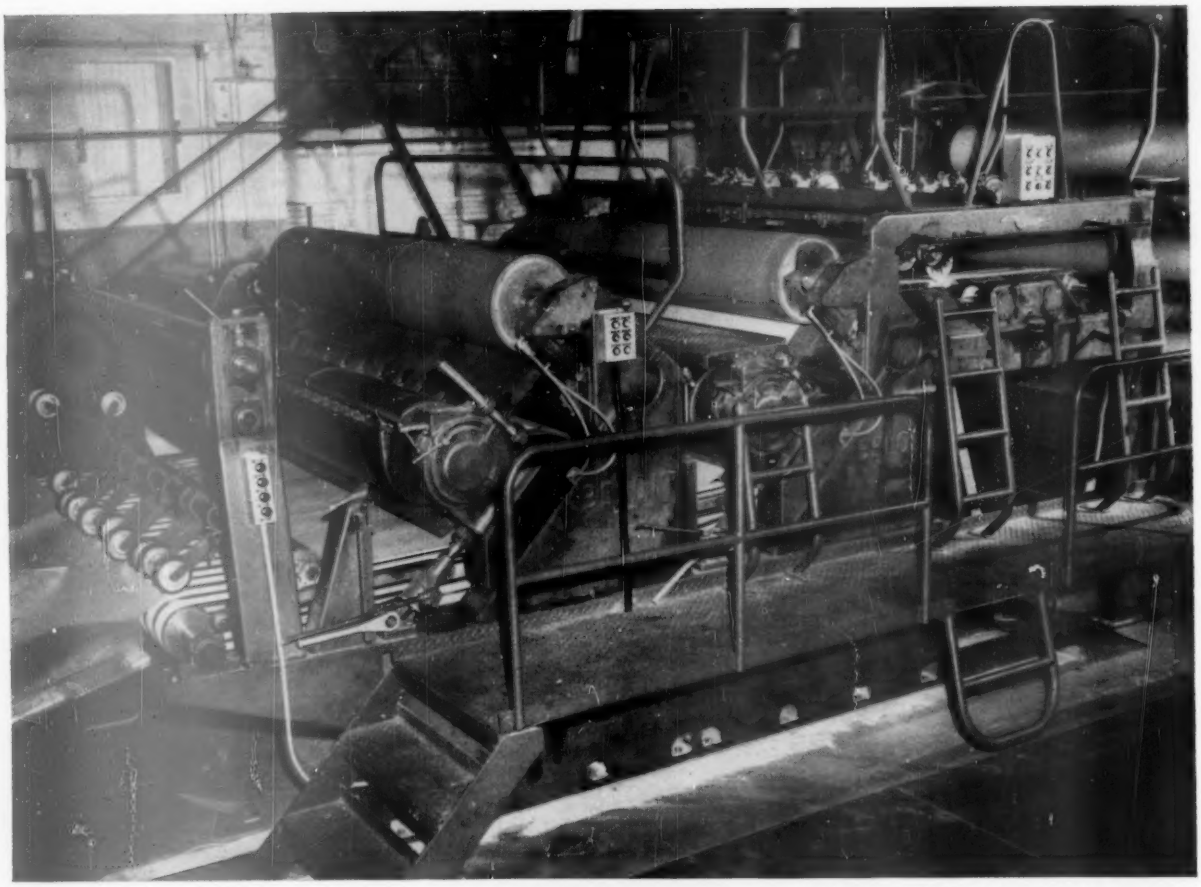
FTC may attack on horizontal mergers

NEW YORK—The industry's trend to horizontal mergers may be on the way out, if the Federal Trade Commission has its way. According to Malcolm K. Whyte, counsel for the National Paperboard Assn., FTC takes view that in a national industry, if there were 100 competing companies instead of 10, there would be healthier competition. FTC, he says, prefers stratification that is, for one group to own forests, another pulp mills, another paper mills and another converting.

But this integration has been one way in which the industry is able to reduce its costs tremendously, says one expert. Some companies see the "big money" as being in the converting and distributing end.

Carpenter Paper Co., a big Midwest paper merchant, is a case in point. It was recently cited for its growth and profitability pattern since 1953, with sales increase from $66 million to $102 million, while earnings per share rose from $2.44 to $3.67.

It wasn't too long after this report was made that Champion Paper & Fibre Co. and Carpenter announced



Packaging Corporation of America, Central Fibre Products Division., Hutchinson, Kansas

New Beloit Duplex Cutter and Slitter

The cutter pictured above is a completely new Beloit design. You will find that its thoroughly proven components, rugged and dependable, contribute to new high standards of production efficiency. Outstanding features are listed at right.

Look to Beloit Eastern Corporation to furnish you with the finest in finished product processing equipment:

WINDERS · RECLAIM WINDERS · CUTTERS · SLITTERS · SUPERCALENDERS · ROLL WRAPPERS · ROLL LOWERING TABLES · ROLL AND SHAFT HANDLING EQUIPMENT · CONVEYORS · UNWIND STANDS AND TRU-TENSION CONTROLS · AND OTHER EQUIPMENT FOR THE PAPER AND ALLIED INDUSTRIES

- Improved fly knife and bed knife assembly assure accuracy of sheet length and squareness of cut. Draw control between nip rolls maintains stable operation.
- Individually air-actuated slitters mounted on a common shaft. Each slitter assembly is designed with a preset toe-in and offset for minimum operator attention and maximum blade life.
- Cutter knife assemblies are symmetrical, permitting adaptation to a simplex, duplex, or even a triplex arrangement.
- Controls are logically placed for convenience of the operator.

BELOIT EASTERN PAPER MACHINERY DOWNINGTOWN, PENN.

BELOIT EASTERN CORPORATION

DOWNINGTOWN, PENNSYLVANIA

Member Beloit Group

a proposal for joining the two companies. Carpenter, with headquarters in Omaha, Nebr., is a major distributor for printing, writing, commercial and industrial papers in 26 Western states.

Hudson Pulp & Paper Corp. has acquired all outstanding stock of **Angel Soft Tissue Mills, Inc.**, Thomson, N.Y. Merging of **Mengel Co.** into **Container Corp. of America** has been approved by stockholders.

National Vulcanized Fibre Co. and **Fischer Mfg. Co. Inc.** have agreed to merge. The Georgia firm (Fischer) supplies metal, vulcanized fiber, fiberglass and fiber-armored materials handling receptacles for southern textile industry, which is centered largely in the Carolinas and Georgia.

Packaging Corp. of America plans to enter plastics industry by acquiring **Worcester Moulded Plastics Co.** Move is to expand marriage of polystyrene plastic and paperboard packaging materials. Since 1957, cites Packaging Corp., expanded polystyrene in packaging has increased from 100,000 lbs./year to an estimated 3 million lbs. for 1960; still only 3½% of $75 million market for interior packaging.

Reed tells why it moves into Canada

VANCOUVER, B.C.—Albert E. Reed & Co., giant British paper manufacturing organization, seeks to acquire Imperial Paper Mills Ltd., in the United Kingdom and two Canadian companies, Anglo-Canadian Pulp & Paper Mills and Gulf Pulp & Paper Co. of Quebec City.

Move would be biggest of its kind in the British pulp and paper industry, would more than double Reed group's capacity to about 1,500,000 tons of paper, board and pulp. Present capacity is about 700,000 tons. About 500,000 tons of prospective capacity would be newsprint.

One advantage would be to give Reed an established base for expansion in North America. The Reed offer is reported to sequel decision of Daily Mirror Newspapers Ltd. to exchange its holdings in the separate companies for Reed group shares.

The offer made by the Reed group for the Canadian companies and Imperial mills was first made last September and its terms are complicated. Reed offered to acquire:

1. The 635,109 Anglo-Canadian shares held by the Daily Mirror, representing 50.24% of the company's common stock.

2. The holdings of all other Anglo-Canadian shareholders except those living in the U.S. An official explained that American shareholders are not being included because of complications involving U.S. securities regulations. The U.S. holdings, however, are small.

3. All the preference and ordinary stock of Imperial Paper Mills. A total of 55.69% of the preference and all of the ordinary shares are held by Fleetways Publications, Ltd., a Daily Mirror subsidiary.

For every 10 shares of no par value Anglo-Canadian stock, Reed has offered 66 of its own ordinary shares. At the time the offer was made Reed stock was being quoted between 50 and 51 shillings.

Fleetway Publications and Imperial Paper together own 99.8% of Gulf Pulp & Paper stock, and these shares would be transferred to Reed as part of the deal through which Imperial was acquired.

The Reed directors have announced that they will pay a special second dividend (interim) of 4% before the issue of shares for Anglo-Canadian and a final dividend of 7% afterward, making a total for the year ending March 31, 1961, of 16%.

The Reed directors reported that Imperial has completed erection of a new paper machine at a total of more than $10,000,000 and the loan from Fleetway to Imperial has increased to some $4,180,000. The loan, remaining interest-free, will be repayable on December 31, 1965. The new paper machine will add appreciably to Imperial's production and an increase in earnings over the next five years is expected.

After deducting Canadian taxes on the basis of a 16% dividend from Reed, the Daily Mirror would receive a dividend income of about $1,100,000 after tax on the ordinary shares of Reed which it will receive from Anglo-Canadian for the year to February 28, 1961.

Anglo-Canadian, of which Elliott M. Little is chairman, is one of the largest pulp-paper operations in Canada and, in addition to its Quebec City mills and extensive pulpwood limits in Quebec, it acquired in 1953 about 99% of the outstanding shares of Dryden Paper Co., which produces kraft pulp and papers in Ontario.

Anglo-Canadian is closely associated with Anglo-Newfoundland Development Co., which Mr. Little also directs as president and whose directorate also includes Viscount Rothermere. Its newsprint mill is at Grand Falls, Nfd.

Gulf Pulp & Paper Co. is a producer of groundwood pulp (210 tons daily) at Clarke City, Que., and it has been associated with Imperial Paper Mills for some time in marketing its output overseas. Charles W. Lewis is president.

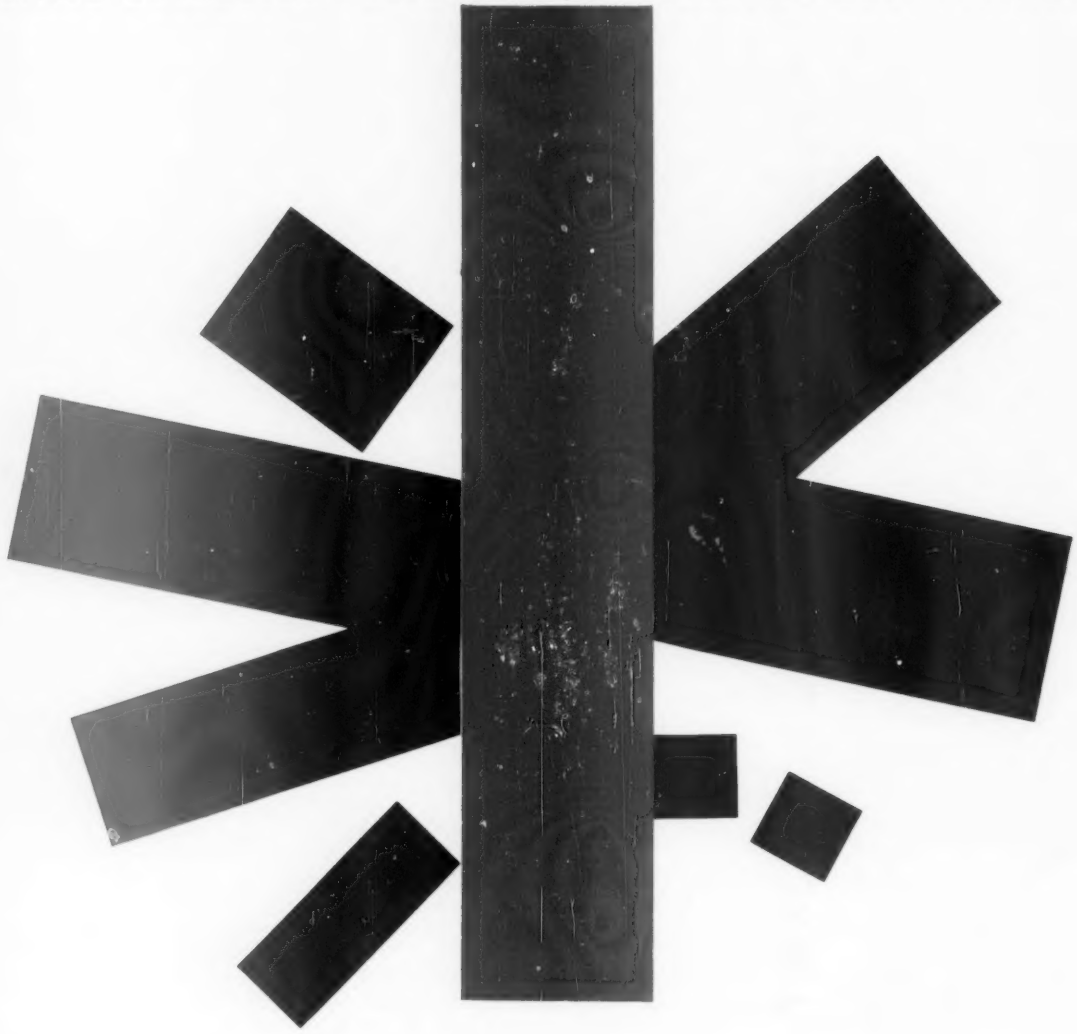
Water: Outlook is for more legislation

WASHINGTON, D.C.—The nation's capital, host to the National Conference on Water Pollution in December, heard a Public Health Service report which estimated that some $10.6 billion would be needed to clean the nation's streams of pollution in the next decade.

Leonard Pasek, special asst. to the chairman, Kimberly-Clark Corp., used the paper industry as an example of the awareness of industry in general to the problems of water pollution.

Mr. Pasek also told the conference that the pulp and paper industry has spent some $100 million to reduce stream pollution. He cited the work of the National Council for Stream Improvement as an outstanding example of what industry can do. He quoted a reduction in fiber loss from 5% to less than 2%; the equivalent in 20 years of some 1.5 million tons of fiber and a reduced waste load.

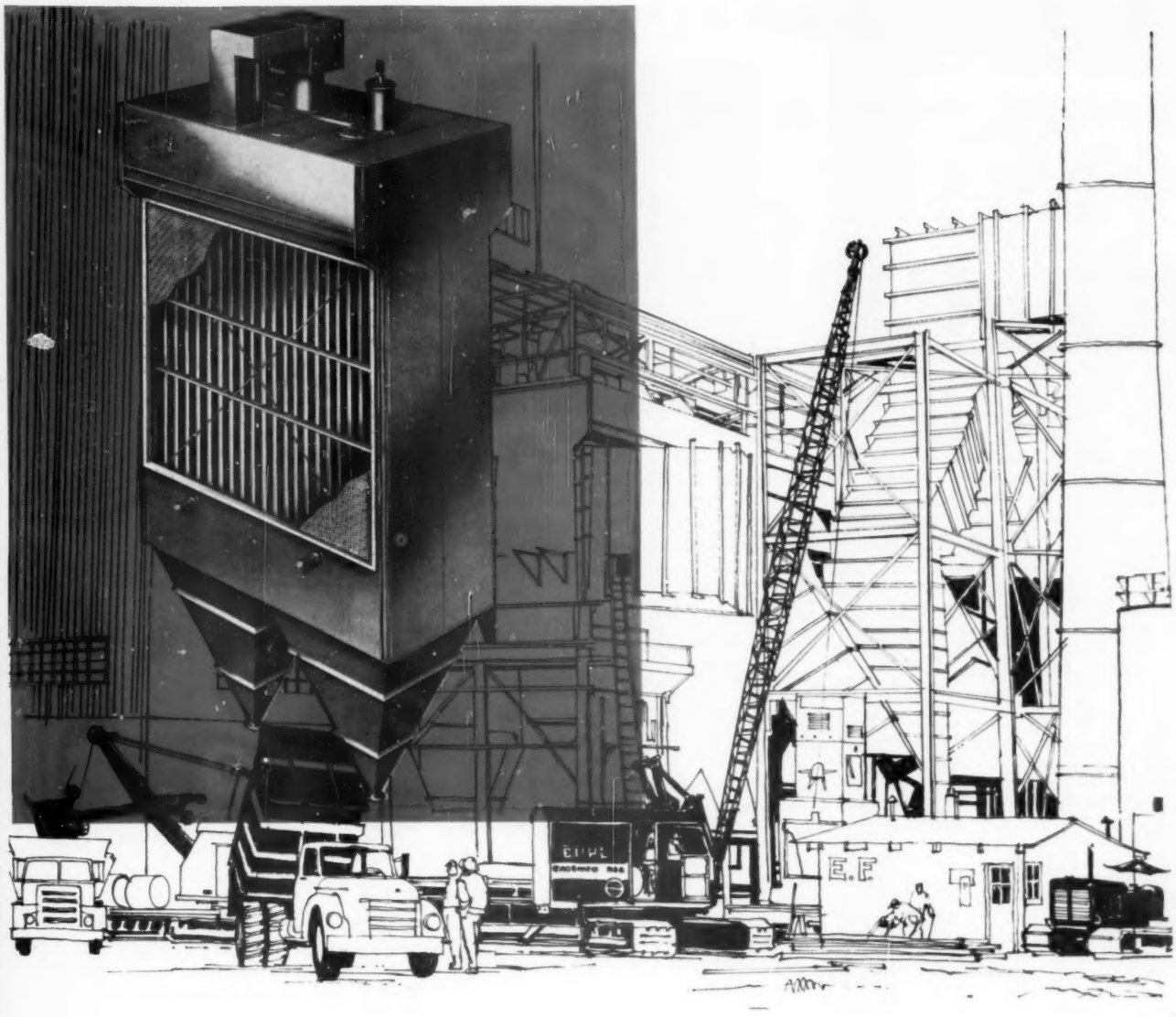
POSITIVE COLLECTOR PLATES ATTRACT NEGATIVE DUST PARTICLES



Improved collector plate design, factory pre-assembly that cuts field erection time, improved pneumatic or electric rapping, automatic voltage control, choice of high-voltage rectifiers

This is the new electrostatic

One of the most important features of our new electrostatic precipitator is the unique new collector plate. It is a flat plate to which we have added a "pocket" that traps dust, and reduces the chance of reentrainment. The new design also improves clean-plate sparking voltage, increases the migration velocity of particles, performs better with high



precipitator from American-Standard Industrial Division!

resistivity dusts, and makes rapping much easier. The choice of rapper is up to you; we offer both pneumatic and electric types. So is the choice of rectifier . . . silicon, selenium, high-voltage vacuum, or mechanical. Automatic voltage control is standard with all units. Factory pre-assembly is carried to the limit of practicality. Case in point: Structural frames, side casing, end panels, and hoppers arrive ready to drop in place. The result is faster, less costly field erection. For detailed information, call our nearest sales office and talk with one of our product specialists. American-Standard Industrial Division, Detroit 32, Mich. In Canada: American-Standard Products (Canada) Limited, Toronto, Ontario.

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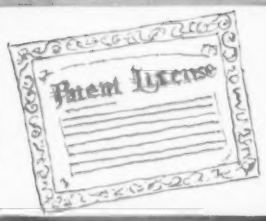
SALES OFFICES IN ALL PRINCIPAL CITIES

Which of these 3 products and services can you use from BECCO?



"Enclosing $1.00 — Send Patent License"

Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The $1.00 really does cover it.

Becco has lots of patents, granted as a result of innovations in the use of Hydrogen Peroxide and other Peroxygen chemicals developed in Becco's Research Laboratories. But they don't do us a whole lot of good locked tightly in our safe. So, we long ago adopted the following policy:

If one of our patents can help you, we'll be glad to license the rights to you **perpetually**, for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important — you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do we get? You as a **customer** — we hope — but there's no obligation on your part. Just seems to work out that way, though — when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer — or our list of patents — that may help you solve an important problem.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
161 East 42nd St., New York 17, N.Y.
Dept. PP-F

Gentlemen:

Please send your list of patents available on the use of

- ☐ Hydrogen Peroxide
- ☐ Peroxygen Chemicals
- ☐ Persulfate Chemicals
- ☐ Please have a Sales Engineer call.

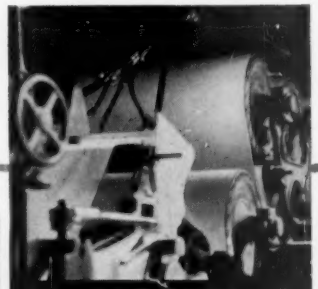
NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____



How BRIGHT Is BRIGHT?

That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

Many chemical pulp producers have found the answer to this problem in Becco's Dryer Steep Bleaching Process (patented, but licensed perpetually for one buck). Applied by means of spray pipes across the pulp sheet ahead of the dryers, Becco Hydrogen Peroxide increases brightness permanence and bleaches in transit. Often, in fact, an 86 layboy level **improves** to 88 by delivery time.

This is just one example. Becco has a vast amount of technical knowledge compiled from 31 years of experience with **all** types of pulp. If you'd like help with your pulp, free of any obligation, let us know with the coupon below.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
161 East 42nd St., New York 17, N.Y.
Dept. PP-C

Gentlemen:

We **would** like help with our pulp. Please have a Becco Sales Engineer call.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

Problems in handling Hydrogen Peroxide

Becco's Four-Fold Engineering Service Program — offered free — includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
161 East 42nd St., New York 17, N.Y.
Dept. PP-B

Gentlemen:

Please tell me more about your Four-Fold Engineering Service.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

Forecasts imply strong growth in paper demand

Written especially for PULP & PAPER By BENJAMIN SLATIN, Economist, American Paper & Pulp Assn.

NEW YORK—The U.S. paper and paperboard industry plans to increase its annual capacity by some 3,281,000 tons during the next three years. This is according to the most recent survey by the American Paper & Pulp Assn. and the National Paperboard Assn. Some 2,341,000 tons will be new machine tonnage while 949,000 tons will stem from improvements on existing machines. In all probability these machines will be running in 1980 and probably well beyond that.

Long-range forecasts in the paper industry are not new. They are essential to the industry. In 1924, the U.S. Dept. of Agriculture published bulletin No. 1241 by Earle H. Clapp and Charles W. Boyce entitled, "How the United States Can Meet Its Present and Future Pulpwood Requirements." With some trepidation they forecast upwards of a 50% increase in per capita consumption of paper and paperboard, indicating that by 1950 the U. S. economy would require some 13½ million tons.

They also explained, "the enormous present consumption of paper (1922) makes it difficult to accept consumption in 1960 as great as 13½ million tons . . . But a similar question might have been raised with justice in 1909 when . . . a prediction of the doubling in consumption by 1922 would have seemed rash indeed."

And what actually happened? Paper and paperboard consumption in 1950 was 3.6 times the 1922 total, while per capita consumption in 1950 was 2.7 times the 1922 level.

Failure to predict growth should not be criticized. The authors of that report saw the forces leading to expansion in paper and paperboard. They noted that consumption had doubled in the preceding 13 years, but believed that an additional growth of 50% in the next 25 years or so would be all that could be expected.

They could not envision what actually happened—that per capita growth could more than triple in the subsequent 25 years. More important, they couldn't see how this additional paper could be used. In that instance, continuation or extrapolation of the per capital trend line through 1950, together with a reasonable forecast of population would have yielded a correct answer. But the numbers would have given no indication whatsoever of just how this higher level of paper and paperboard would be achieved.

A more accurate appraisal of the future appeared in a U.S. Dept. of Commerce pamphlet, "U.S. Pulp and Paper Industry," by J. D. Studley in 1938. In that report, Mr. Studley quoted another report which indicated pulpwood needs would rise from the 16 million cords in 1936 to perhaps 25 million cords in 1950. The 1950 total was a shade below 25 million, while in 1951 the U.S. economy consumed well in excess of 25 million cords. Mr. Studley also said that the U.S. could be made self-supporting in woodpulp, particularly if there were increases in hardwood pulping.

The number of long-range forecasts for paper and paperboard increased as statistical and market research techniques improved.

At least 300 new mills will be needed by 2000. The Senate Select Committee on National Water Resources recently published a series on "Water Resources Activities of the U.S." Print No. 8, "Future Water Requirements of Principal Water-Using Industries," forecasts paper requirements in the year 2000.

This report, based on the Ford Foundation's "Resources for the Future," forecasts U.S. pulp and paper operations in 2000 approximately seven times (4.9% per year) higher than 1959. The Business and Defense

. . . turn to p. 90

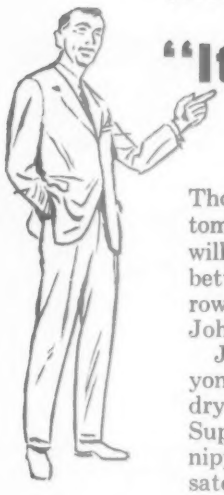
Third Quarter Sales & Earnings

	Net Sales (000)	Income Bef. Taxes (000)	% of Sales	Net Income (000)	Net Per Share
Market Pulp (also Lumber, etc.)					
Brown Co. (11/30)	$ 44,371	$ 943	2.1	$ 603	$0.23
Georgia Pacific	164,489	21,126	12.8	12,008	2.10
Puget Sound Pulp & Timber	26,797	7,172	26.8	3,455	1.32
Rayonier Inc.	100,234	13,503	13.5	7,940	1.40
MacMillan & Bloedel (9/30)	220,251	39,918	18.1	18,519	0.89
Weyerhaeuser Co.	351,852	61,704	17.5	39,704	1.31
Northern Integrated Cos.					
Consol. Water Power & Paper	66,911	13,343	19.9	6,026	2.36
Diamond National	163,187	n.a.	—	9,581	2.03
Fibreboard Paper	84,885	3,494	4.1	1,839	1.04
Glatfelter, P. H.	19,507	3,697	18.9	1,670	2.29
Great Northern Paper	46,740	3,407	7.3	1,909	1.84
Hammermill Paper	43,916	3,711	8.4	1,927	1.49
Oxford Paper	56,841	4,856	8.5	2,133	1.74
Warren, S. D.	55,476	8,577	15.5	4,069	1.89
Integrated—North & South					
Champion Paper & Fibre (yr. 3/31)—(4,1 & 2 Qus.)	158,448	n.a.	—	6,220	1.18
Container Corp. of America	245,544	28,763	11.7	14,076	1.31
Crown Zellerbach	418,770	57,755	13.8	30,608	2.15
International Paper	768,836	104,631	13.6	53,111	3.94
Kimberly Clark (yr. 4/30)—(3,4 & 1 Qus.)	306,851	50,568	16.5	24,507	2.72
Mead	256,035	21,217	8.3	10,132	1.96
Riegel	58,734	4,507	7.7	2,099	1.51
St. Regis	396,839	31,720	8.0	16,766	1.58
Scott Paper	234,472	39,803	17.0	19,833	2.45
Union Bag-Camp	164,267	30,720	18.7	14,540	1.87
West Virginia Pulp & Paper (Yr. ending 10/31)	183,686	17,110	9.3	8,820	1.66
Non-Integrated Paper Co.					
American Writing Paper	n.a.	947	—	455	1.68
Converter Co.					
Dennison Mfg.	32,183	3,127	9.7	1,564	1.21

n.a.—Not available

The sales and earnings for the nine months of 1960 were especially prepared for PULP & PAPER by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct, no guaranty is given as to their accuracy.

New Paper Machine? Here's a tip from the field:



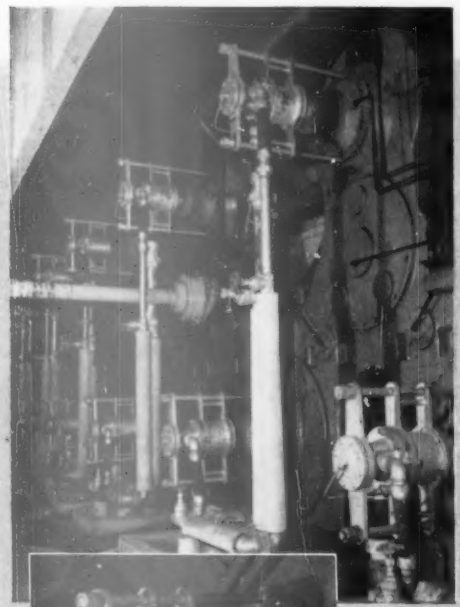
"It's not really new without JOHNSON JOINTS"

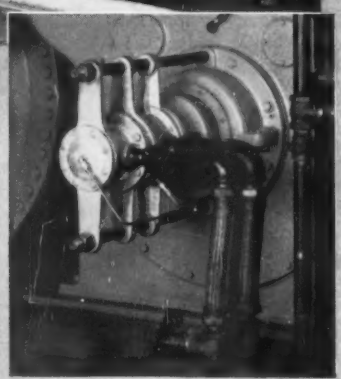
Those aren't our words; one of our customer-friends said it. But this much we will say: Any new paper machine will be better able to meet today's—and tomorrow's—demands if it is equipped with Johnson Rotary Pressure Joints.

Johnson engineering has gone far beyond the simple task of getting steam into dryer rolls. Developments like the new Super construction, the "Quick Release" nipple and the Automatic Load Compensator have blazed a trail toward higher operating speeds and pressures. Research with the new Johnson Rotary Syphon places us now on the threshold of a major breakthrough in roll drainage.

Johnson Joints are available for all paper machines—rotating or stationary syphon pipes, open or enclosed gearing. All machinery manufacturers can supply them. We'll supply a pair for 90-day trial in your own mill, so you can get all the facts first hand.

Write for information on Johnson Joints—most advanced and most complete line of its kind





These two are really NEW

Pictures show Johnson Joints on two outstanding paper machines built by Black-Clawson Company, Paper Machine Division. There are 64 Johnson Joints on one, 69 on the other. These are Type L-N Joints, for rotating syphon pipe application. The simple method of mounting employs support rods which carry all the weight of joint and piping, permit the rotating assembly to "float" freely inside. Installations include Automatic Load Compensators, a device which utilizes pressure from within the joint to create a never-varying unloading pressure at the sealing surface, thus cutting power demand and wear to a minimum.

JC THE JOHNSON CORPORATION

849 Wood Street, Three Rivers, Michigan

Rotary Pressure Joints • Direct Operated Solenoid Valves

Scott Paper advances five senior executives

CHESTER—Four vice presidents and an asst. vice pres. have been elected to newly created posts by Scott Paper Co. Their appointments complete a phase of senior management reorganization which started last year with naming of an executive committee (**Harrison F. Dunning,** exec. v.p., marketing; **Paul C. Baldwin,** exec. v.p., mfg. and research; and **Andrew J. Schroder, 2nd,** administrative v.p.).

Brown

Forman

McCabe, Jr.

Thieme

Eberl

Paul Brown becomes vice pres. for retail sales; **Loren V. Forman** moves to vice pres., research, development and engineering; **Robert I. Thieme** becomes vice pres., manufacturing. Designated as vice pres. for all internal phases of marketing is **Thomas B. McCabe Jr.** and **James J. Eberl** moves up as asst. vice pres. for research.

Riegel realigns specialty products personnel

NEW YORK—The specialty products division of Riegel Paper Corp. has made these changes in operating personnel at its four mills in New Jersey. **Dr. Lamar A. Moss,** formerly mgr. of mfg. services, replaces **Donald G. Magill** as technical director. Mr. Magill becomes Upper Mills manager. Both report to **Dr. W. Allen Schenck,** mgr. of New Jersey operations.

Dr. Moss, a ph.d. from Institute of Paper Chemistry, will concentrate on research and development; Mr. Magill will supervise paper production at Riegel's Warren Glen, Riegelsville and Hughesville mills.

Lawrence N. Agnew, formerly supt., is now production mgr., Milford mill. **Donald Newcomb** transfers from supt. of Hughesville mill to supt., coating dept. at Milford. **Richard W. Flores,** formerly acting supt. at Riegelsville mill, becomes Upper Mills technical supt. **James Galloway,** previously supt. of finishing at Milford, moves up as supt. of Riegelsville and **Joseph Judge** is promoted from asst. to supt. of Hughesville replacing Mr. Newcomb. **Thomas Rutt** continues as superintendent at Warren Glen mill in New Jersey.

Other changes include transfer of **Wolfgang O. Wilfert,** from supt. coating to supt. of converting, replacing **William Anderson** who fills new post of director of converting development. **Lawrence L. Schroth** assumes Mr. Galloway's post as supt. of Milford finishing.

STRICTLY PERSONAL . . .

East

Roger Egan

has left Bulkley, Dunton Pulp Co. as vice president to set up Roger Egan Associates, consultants in pulp and paper economy and sales. Located in the Lincoln Bldg., 60 East 42 St., New York 17, the new company, explains Mr. Egan, is staffed and fully qualified to give expert information, advice and research in market pulp sales as well as the many interrelated fields of paper sales, processing, finance and the stock market.

Charles H. "Chuck" Champion, manager of the paper dept., R. T. Vanderbilt Co. died in November at 64. He had been with R. T. Vanderbilt for 30 years. . . . **Ray E. Harter,** a veteran of 26 years with Vanderbilt and the past 10 as asst. manager, succeeds Mr. Champion. . . . **Richard M. Talbott,** New England and Eastern N.Y. State sales representative moves up to asst. mgr.

Meyer-Jagenberg Malitz Greiner

Dr.-Ing. Guenther Meyer-Jagenberg, president, Jagenberg-Werke A.G. of Düsseldorf, West Germany, announces formation of subsidiary, Jagenberg USA, Inc., succeeding American Paper & Pulp Co. Inc. He will be president and chief executive officer; **Hans Malitz,** will be vice pres.; and **Thomas S. Greiner,** who has been handling actual operations of Jagenberg for American Paper & Pulp Co., is vice pres. and resident mgr.

Robert M. Mayer, previously technical asst. at Champion Paper's 246-in. fine paper machine at Canton, N.C., has joined Rayonier's technical service dept. . . . **Robert March** is now asst. to chief industrial engineer, Fitchburg Paper Co.

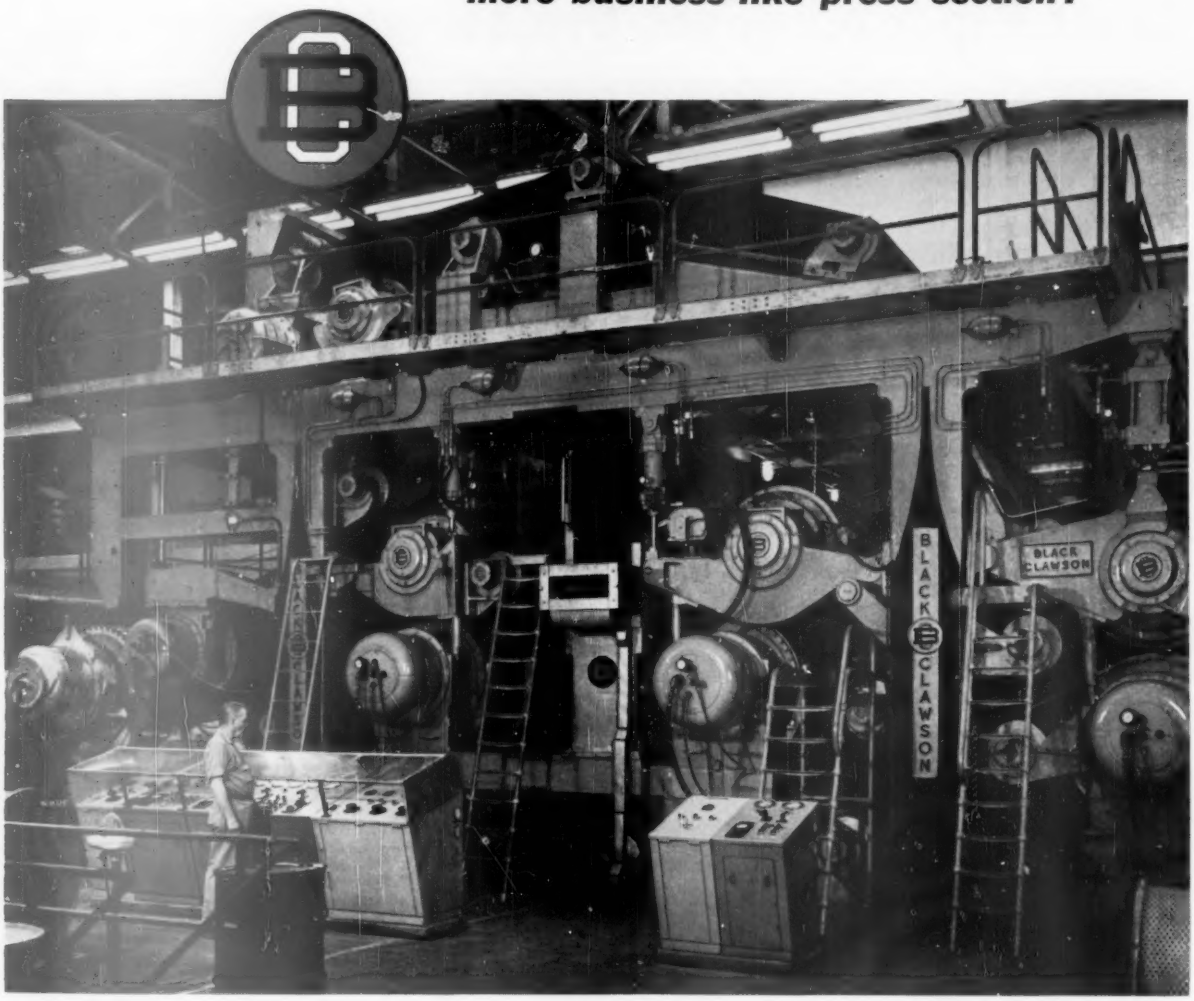
Edward Novick moves from The Dow Chemical Co.'s Midland, Mich. headquarters to Boston to handle Dow products for the pulp and paper industry. . . . **E. Michael McMahon** transfers from Philadelphia area sales to northern New Jersey and eastern New York State for Becco chemicals. **Sam L. Cassedy** succeeds him in Philadelphia area.

Everett P. Ingalls Jr. has been promoted from production manager to new post of director of technical services, St. Croix Paper Co.

Robert P. Funke has been promoted to staff asst., industrial relations dept., Riegel Paper Co. . . . **Samuel Schaadt** succeeds him as . . . **turn to p. 82**

Have You Ever Seen *a cleaner,*

more business-like press section?



It's cleaner in design, uncluttered, easier to operate and maintain because it's been simplified. There's a minimum of parts. Roll removal is an easy procedure . . . so is felting, because all components are accessible.

When engineering paper machine sections, Black-Clawson strives for greater efficiency through design simplification.

The customer is always the beneficiary of advanced paper machine engineering that is based on practical understanding of the papermaker's needs.

PAPER MACHINE **DIVISION**
Watertown, New York
ANOTHER ADVANCED ENGINEERING DESIGN

BLACK-CLAWSON

MEETINGS

. . . January

Connecticut Valley PIMA (Winter Meeting), Publick House, Sturbridge, Mass.—Jan. 12

Pacific TAPPI (Process and Quality Control), Tacoma, Wash.—Jan. 17

Kalamazoo Valley Section of TAPPI and PIMA (Annual Papermakers Get-Together), Hotel Harris, Kalamazoo—Jan. 19

Plant Maintenance & Engineering Show, International Amphitheatre, Chicago—Jan. 23-26

Miami Valley Division PIMA, Manchester Hotel, Middletown, Ohio—Jan. 24

Technical Section CPPA (Annual Meeting), Queen Elizabeth Hotel, Montreal—Jan. 24-27

. . . February

Southern Pulpwood Conservation Assn. (Annual Meeting), Roosevelt Hotel, New Orleans—Feb. 7-8

Michigan PIMA (personnel training), Harris Hotel, Kalamazoo—Feb. 9

Paper Week: TAPPI, Commodore Hotel; **APPA,** Waldorf Hotel; **APA,** Roosevelt Hotel; New York—Feb. 19-23

. . . March

Kalamazoo Valley Section of TAPPI and PIMA (graphic arts), Innmans Restaurant, Kalamazoo—Mar. 16

Folding Paper Box Assn. of America (annual meeting), Drake Hotel, Chicago—Mar. 20-22

. . . April

Kalamazoo Valley Section of TAPPI Innmans Restaurant, Kalamazoo—Apr. 6

New York-Canadian Div. PIMA (spring meeting), Eastman Kodak Co., Rochester, N. Y.—Apr. 21

Michigan PIMA (Ladies night), Harris Hotel, Kalamazoo—Apr. 22

. . . May

Kalamazoo Valley Section of TAPPI Recognition night), Gull Harbor Inn, Kalamazoo—May 25

. . . June

Kalamazoo Valley Section of TAPPI (fun night), Gull Lake Club, Kalamazoo—June 20

. . . September

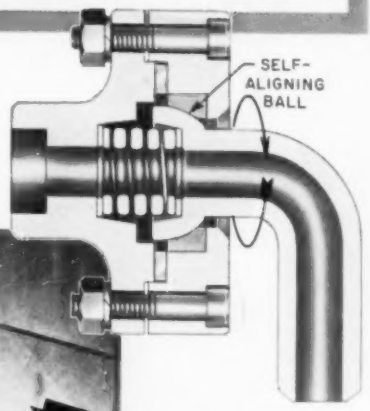
Northwestern Div., PIMA (fall meeting), Faust Hotel, Rockford, Ill.—Sept. 20-22

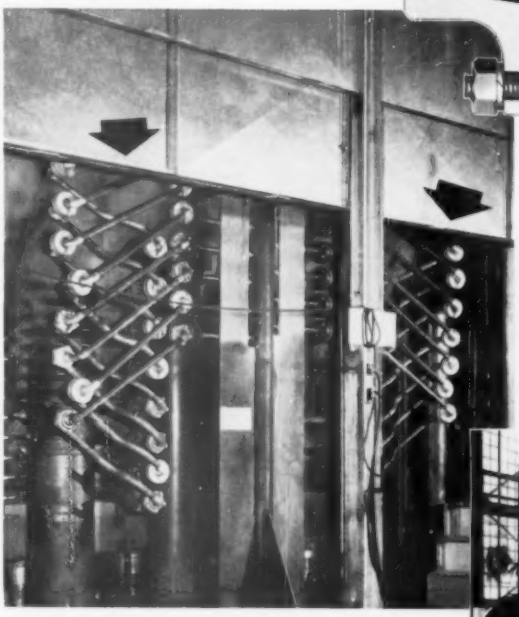
. . . October

Packaging Institute (23rd Annual National Packaging Forum), Biltmore Hotel, New York—Oct. 18-22

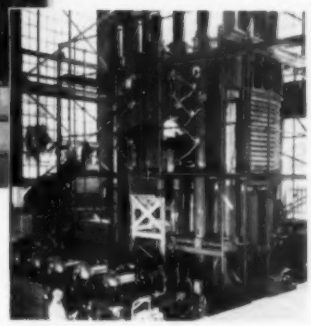
How to Handle 550 psi Steam —Use BARCO Series 850 Swivel Joints!

On Multiple Platen Hardboard Presses





Left—A close-up view of 1¼" Barco STWS Swivel Joints in new hardboard plant of Abitibi Corporation in Alpena, Michigan, on an R. D. Wood Company fifteen platen press. The joints handle 500-550 psi steam, 450 F, twenty-four hours a day.



HIGH PRESSURE STEAM SERVICE

The Barco "Series 850" Swivel Joint is a new development. It is *the key* to solving many PIPING FLEXIBILITY problems where high temperatures and pressures are encountered. Many of these joints are now being used to make flexible "Dog Leg" piping connections for steam supply and condensate drainage of movable platens on giant hardboard presses, as illustrated by the accompanying photographs.

Barco "Series 850" Swivel Joints offer important advantages: (1) Built for 850 psi steam pressure rating—steel construction, hardened ball, stainless steel spring; (2) Choice of seals to handle 500°F, 750°F, or even 1000°F temperature; (3) Ability to stay in service 24 hours a day, 7 days a week, for month after month without maintenance; (4) Compact design, with Barco's distinctive "self-aligning" feature which make for quick, easy, economical pipe fitting; (5) Choice of 90°, 180° or straight body styles with threaded or welding end connections, in a range of sizes.

Engineering recommendations and detailed information on request; ASK FOR CATALOG 265D.

PRODUCTS BACKED BY EXPERIENCE
BARCO
FOUNDED 1903

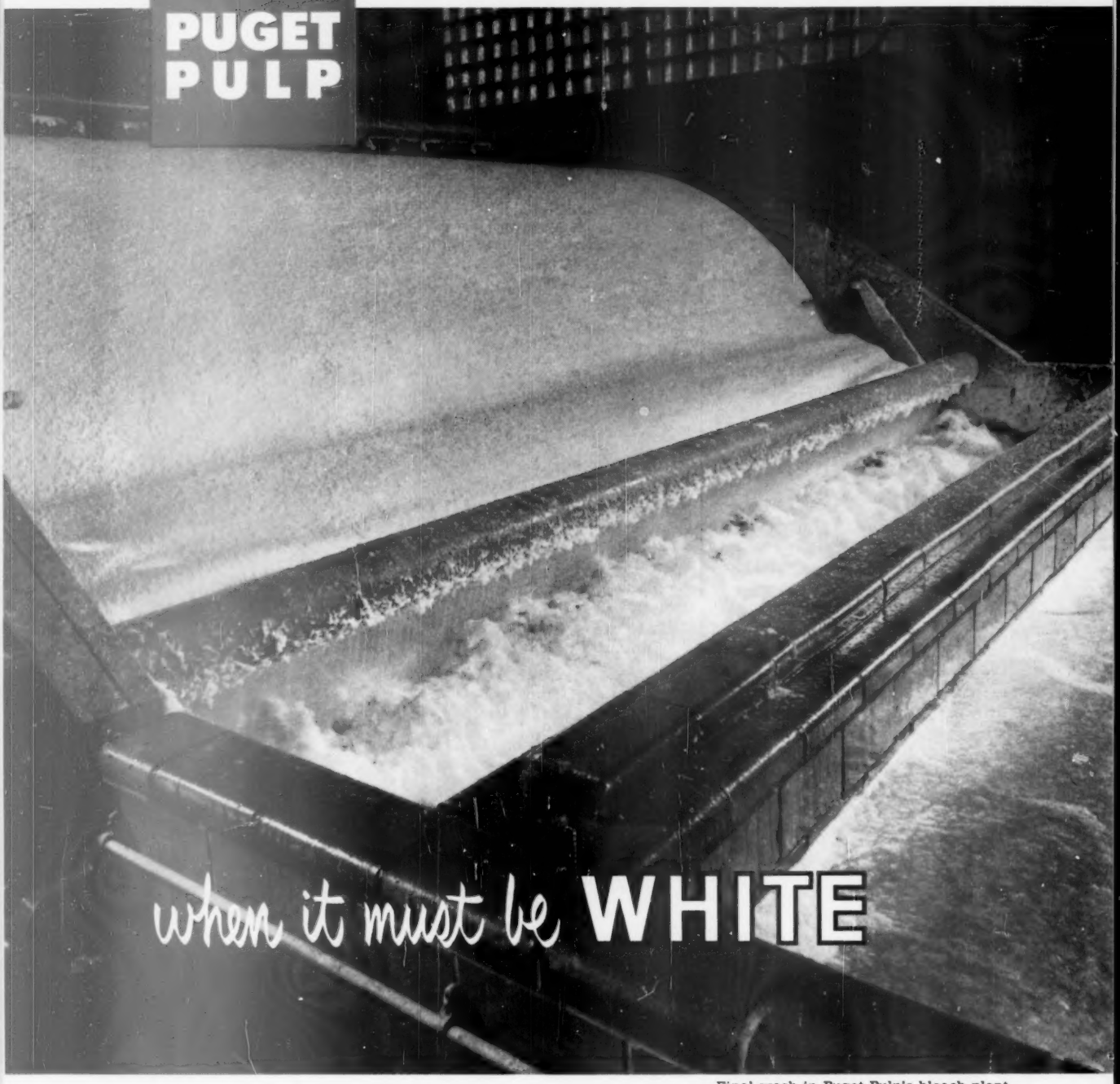
BARCO MANUFACTURING CO.
573B Hough Street, Barrington, Illinois

The Only Truly Complete Line of Flexible Ball, Swivel, Swing and Rotary Joints

In Canada: The Holden Co., Ltd., Montreal

ASK FOR CATALOG 265D

PUGET PULP



Final wash in Puget Pulp's bleach plant

start with PUGET PULP...
...the uniformly strong, clean, white
chlorine dioxide bleached
softwood sulphite

PUGET SOUND PULP & TIMBER CO.
BELLINGHAM • WASHINGTON

NEED NOT ALWAYS COST MORE

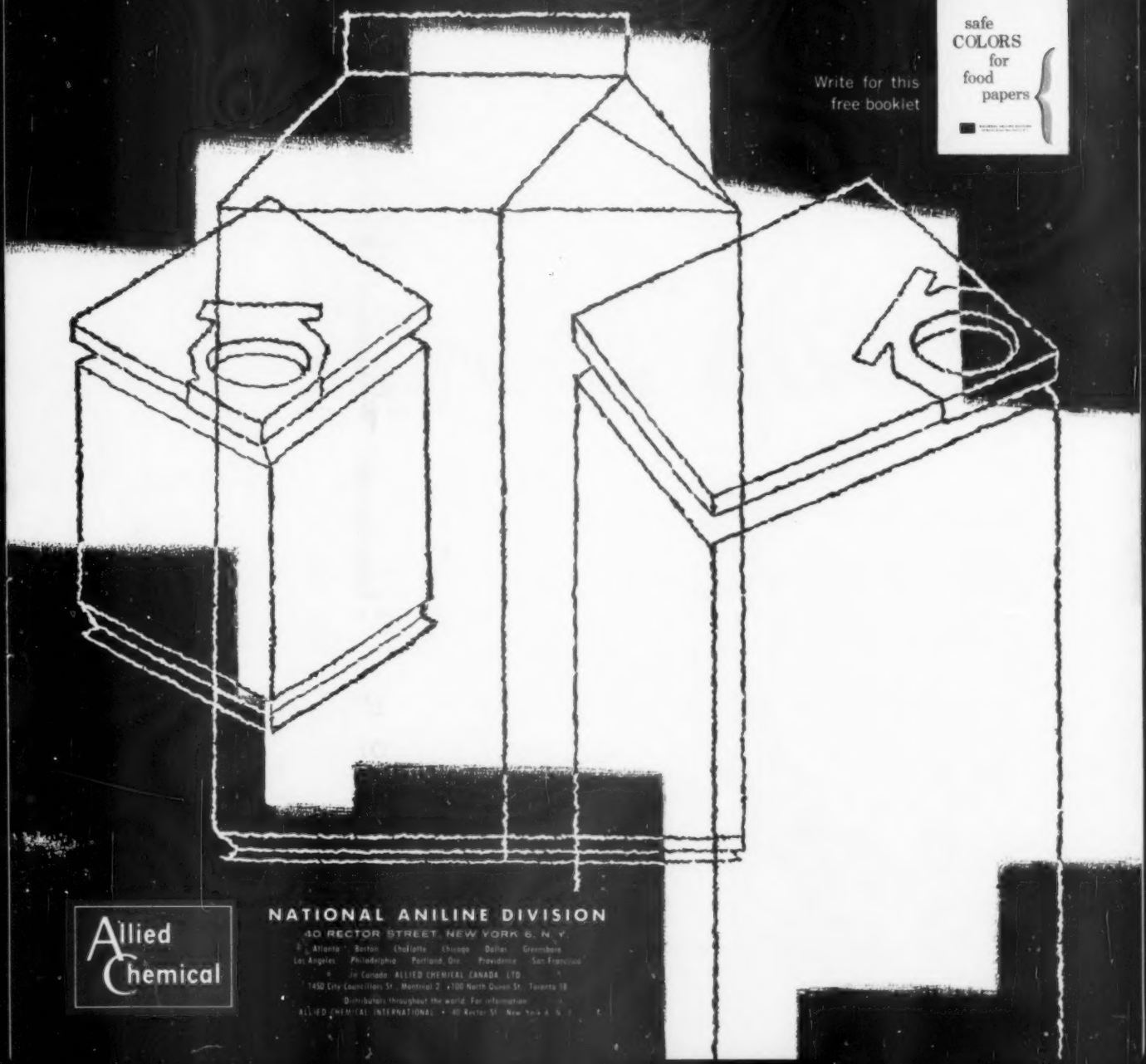
Paper board for milk cartons, ice cream containers and other food packaging can now be dyed with National® Certified Colors . . . **at no increase in cost as compared with conventional dyes!**

Since they are already certified for use in food, FD&C colors present no transfer problem. Economical application techniques were developed by National Aniline research, a result of our unique experience in coloring both foods and paper.

Working with conventional dyes, as well as certified colors, we are engaged in intensive research, independently and in cooperation with the chemical and paper industries, to solve the many problems that still exist in coloring food papers under the Food Additives Amendment.

We will be pleased to assist you any way we can.

Write for this free booklet



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T. R. Corn, Sales Engineer, Akron District Office.

This is Tom Corn, a Reliance Sales Engineer. Use this man the way he can be used, and you'll be buying not only good products, but a trained insight into the problems of applying electric motors and drive systems to products and processes, such as . . . . . .

RELIANCE ELECTRIC AND ENGINEERING COMPANY

Reliance meets the peculiar needs of progress.

Loading or unloading of United Jet Mainliner passengers in three minutes is now an accomplished fact at major air terminals.

Product of the jet age, this "Jetway" passenger loader came to life as a result of some unique engineering on the part of Reliance and the Pacific Iron and Steel Co.

Reliance engineered a drive system that makes the "Jetway" as easy to handle as an automobile. One operator moves it into position against the plane doors in less than a minute. Operation is smooth and stepless. Separate controls compensate for weight changes as the load shifts from plane to ramp and vice versa.

Adapting Reliance products to this unusual vehicle called for imagination and ingenuity . . . and the "Jetway" works fine.

The "Jetway" ramp now is used by several major airlines, and is operated by Reliance gearmotors, electronic exciters and motor-generator sets which convert airport a-c. power to d-c. More "Jetway" ramps are being installed at important terminals throughout the country.

RELIANCE ELECTRIC AND ENGINEERING COMPANY

Something more than electricity keeps this Reliance Motor running.

The oil field motor that drives this unit is protected, inside and out. It is not affected by dust, dirt, water or changes in the weather.

Reliance engineered and built this weather-proof motor, which is operating an oil well pump, in order to provide continuous operation with negligible maintenance . . . otherwise it wouldn't be where it is.

There are many such areas in the country where Duty Master Motors are subject to extreme environmental conditions. Yet the weather-proof is only one of a broad line developed to meet any a-c. motor requirement . . . and that takes in a lot of territory. Duty Master's wide acceptance is testimony to the creative engineering which produced it.

This 15 hp. Duty Master operates an oil well pumping unit at the Fair-Glenn Field, Sapulpa, Oklahoma. Sound insulation, rodent screens and the "Metermatic" lubrication system are vital qualities of this motor which performs so well in areas where weather and infrequent supervision are factors. It runs 24 hours a day regardless of adverse conditions.

RELIANCE ELECTRIC AND ENGINEERING COMPANY

It takes more than horsepower to make a quality product.

These two super-calendar machines put a rich, glossy finish on paper. Alternate steel and cotton rolls produce a buffing, or polishing action on the previously treated product. Reliance Drives keep speeds of various rolls exactly regulated so that uniform, precise tension is maintained.

The big design trick here is to maintain exact tension during acceleration and deceleration of the drive system. Process requirements call for frequent speed changes. Any variation of tension during these changes is dangerous. The paper "web" can break, rolls can jam, the system can go haywire. But this one doesn't.

Reliance Engineers were in on this installation from start to finish . . . worked with company engineers to assure sound operation.

Tachometer feed-back systems with Reliance regulators keep the system perfectly controlled. Motors are synchronized to keep paper flowing smoothly at 2,000 feet per minute. A total of six machines in this mill are powered and controlled by Reliance, testimony to creative engineering and intelligent application.

Reliance Sales Engineers are ready to help your company solve motor and drive application problems . . . and they will act quickly and efficiently. There is a Reliance office near you. Check your telephone Yellow Pages . . . write, or call us direct.

A-1663

Product of the combined resources of Reliance Electric and Engineering Company and its Master and Reeves Divisions

RELIANCE ELECTRIC AND ENGINEERING CO.

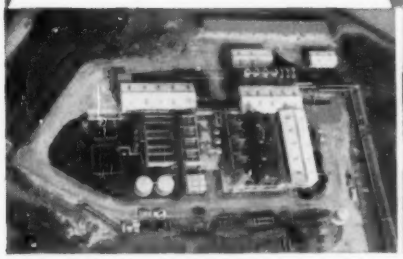
DEPT. 344A, CLEVELAND 17, OHIO
Canadian Division: Toronto, Ontario
Sales Offices and Distributors in Principal Cities

Duty Master A-c. Motors, Master Gearmotors, Reeves Drives, V★S Drives, Super 'T' D-c. Motors, Generators, Controls and Engineered Drive Systems.

SULPHUR

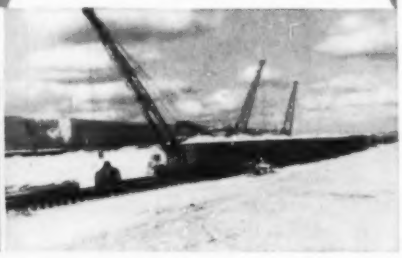
6 POINTS OF DEPARTURE

FANNETT, TEXAS



MOSS BLUFF, TEXAS

NEWGULF, TEXAS



SPINDLETOP, TEXAS

WORLAND, WYOMING

OKOTOKS, ALBERTA

Solid or Molten Sulphur to all users in the United States and Canada

In addition to these six producing properties, stocking and distribution centers are being set up, thus broadening the TGS Service to industry. Ample supplies of both molten and solid sulphur will be available at these centers. Cincinnati, the first of these units, is now in full operation.

TEXAS GULF SULPHUR COMPANY

75 East 45th St., New York 17, N. Y.
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Sulphur Producing Units: Newgulf, Texas • Spindletop, Texas • Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming • Okotoks, Alberta, Canada

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FUNGICIDE and BACTERICIDE

very low order of toxicity

Relatively non toxic to warm blooded animals

for use as a

SLIMICIDE

safe for Food Paper and Paperboard

when used as recommended

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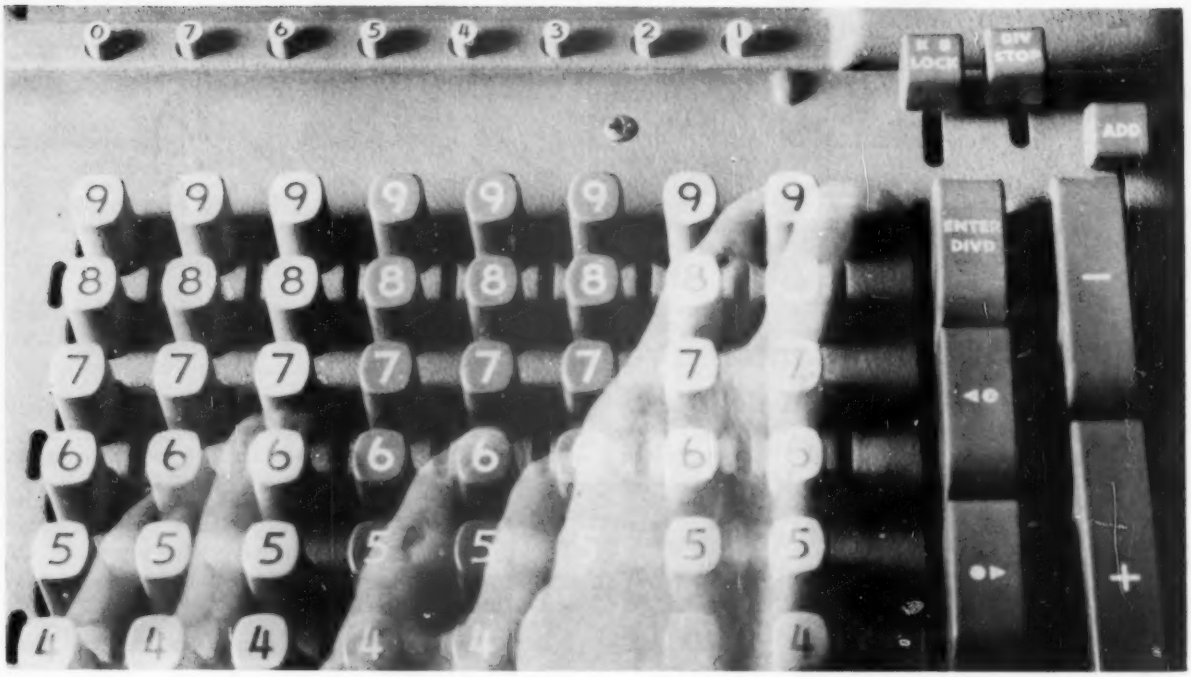


"How We Make COST CONTROL Work" . . . by a BLUE RIBBON PANEL

On these pages, sixteen industry leaders give their views on 1961's most pressing problem. So they may speak candidly, their individual comments are not identified

"Years ago, top management threw its money in a pot. If the pot ran over, what fell on the floor was profit. If it ran dry, you were out of business. Today you must know where every penny is all the time to stay alive . . ."

With this brief analysis, one of PULP & PAPER's panelists strikes at the heart of the industry's major problem in 1961: cost control. Costs are historical; they record and evaluate in dollars events which have taken place. In the vigorous competition which exists and will undoubtedly grow in the sixties, organizations which devote time to develop and review their costs to detect weaknesses will be the successful ones.

"Money is the common denominator," said another panelist. "Our economy exists on the use of money as a medium for expressing our value for services or goods exchanged. What is left over is profit and expresses our ability to produce and trade. Without cost controls and analyses, we wouldn't have the answers until too late . . . the result would be disaster . . ."

It is only through absolute adherence to cost control that a satisfactory return can be obtained on investment, points out another. "Experience," says he, "indicates that successful companies employ the same strict adherence to cost controls regardless of good or bad markets."

COST CONTROL

The panel . . .

Harold M. Annis
Vice Pres.
Oxford Paper Co.
New York City, N.Y.

F. O. Boylan
V.P.-Mfg.
Crown Zellerbach Corp.
San Francisco, Cal.

Ray Brown
Asst. Res. Mgr.
East Texas Pulp & Paper Co.
Silsbee, Texas

Sidney M. Collier
V.P.-Gen. Mgr.
Spaulding Pulp & Paper Co.
Newberg, Ore.

Carlie L. Crain
Vice Pres., Southern Kraft Div.,
International Paper Co.
Mobile, Ala.

"Issue cost information on a regular basis . . ."

What are the devices necessary to good cost control? In their comments, PULP & PAPER's 16 panelists have presented a formidable picture of what the derivatives of a good control system should be.

"The first step in a successful program is establishment of a standard or norm. It is necessary to set standards (budgets) for all activities affecting costs directly or indirectly. The norm is obtained by detailed analysis of performance of operation and careful study of overall effectiveness and efficiency of men, machines, materials . . ."

"Cost standards should be determined annually and compared to actual daily and monthly performance."

"Cost information should be issued on a regular basis . . . if long periods of time elapse between studies, it is not possible to detect and correct them when they get out of control."

"Cost per unit should be figured on every grade produced. Operating standards can thus be set and from these, profitability of grades and future policies set . . ."

"Each department should be charged with actual labor, depreciation, repairs, supplies, etc. This cost is shown per unit of production for current month, previous month, yearly average. Departmental costs are then tied together throughout the mill, giving an operational cost for the month to be compared to the annual average."

"Traditional cost accounting is safe to use where comparatively few grades are made, operating levels are fairly stable, schedules steady, efficiency fairly high and business is not conducted on a job order basis. Otherwise costs should be controlled on the individual needs of the company."

"The benefits derived from a truly skillful management can never be substituted by any kind of cost control system . . ."

"Never close a meeting with a cost mystery . . ."

Once the system is established, steps can then be taken to "put teeth" into it and make it work. One basic requirement: Delegate responsibility for maintaining the system to everyone involved.

"Each departmental superintendent should be directly responsible for the operating cost of that department. Management and accounting can then dig into any item that is out of line and get the reason. Steps can be taken to correct it immediately . . ."

"Never permit a meeting to close with some mystery concerning costs unsolved."

"All our supervisors get a monthly, and in some cases daily, operating report comparing costs in his department to the standard. Variances must be explained . . ."

"Special cost studies are used, when deemed necessary, to analyze on a detailed basis any pronounced variances which occur."

"Useful cost information should be in readily understandable form to all those involved . . ."

"The 'teeth' of any program starts with top management. It must be decisive and responsible . . . assignment of cost responsibility to production managers must have the same emphasis as production and quality has. . . . If one has a well developed, hard hitting group of managers they perform well at any task. Good managers develop a cooperative, coordinate group with high morale. . . . Cost control is not an exception, it is a normal function of such a group."

". . . Management is not a custodial responsibility, it is a development one. The role of the manager is to improve operations, not merely superintend them. Unless a manager can meet this standard he is not qualified to manage. Work with your men, train them, develop their thinking, compensate them for results."

"The biggest secret: Well-informed men . . ."

Another area of broad general agreement among the experts is enlisting the help of the man-on-the-job. Says one expert: "A well-informed man on the job is a great help if he understands his particular effect on costs. But he must know the what, why and how regularly. A good supervisor develops this interest, lets his men know the trends, enlists their aid. It always amazes me to see what they can do as part of a well organized and integrated team."

This cost-consciousness should extend throughout all echelons: management, manufacturing, sales, research, engineering, administration and treasury. Anticipated sales volume, for instance, coming from an alert sales force, can be interpreted into plant volume and requirements for raw materials. Direct and indirect conversion elements and plant capital and expansion can thus be evaluated more accurately.

More specifically, a cost-conscious man on the job can go a long way toward slashing costs in his particular department. How can this be done? One panelist has a good answer:

"For the department head to be an effective member of the cost team, management must show him what each item costs—per cord of wood, per ton of pulp or per ton of paper. It is our feeling that budgeted costs result in higher maintenance and operating costs. If you estimate

Derek G. Carrie
Vice Pres.-Mgr.
Pulp & Paper Board Div.
Weyerhaeuser Co.
Tacoma, Wash.

Erik Ekholm
Exec. Vice Pres.
Puget Sound Pulp & Timber Co.
Bellingham, Wash.

A. J. Haag
Mgr. of Prod. Services
Scott Paper Co.
Chester, Pa.

the dollar value of a wood conveyor, for instance, and amortize it an equal amount for the next 12 months, the cost of chain per cord of wood will be greater than it would be if the chain were charged out as used. Here's why. If a department head gets in the habit of looking at a cost item month in and month out he becomes accustomed to it and the cost doesn't mean much to him. But if you operate for a month or two with no cost at all for an item and suddenly he gets charged for, say, 1,000 feet of conveyor chain at one time, the shock usually keeps him alert. Everyone then tries for longer life from conveyor chain . . ."

There are dangers in this, as one expert warns:

"If you tell your recovery room operators the actual cost of supplementary fuel they are using per boiler there is always the danger they will get the idea you don't want them to use any fuel at all. Sometimes it is rather hard to get a complete understanding . . . the man-on-the-job must be impressed with the fact that it is necessary to maintain costs as low as possible BUT maintain proper operation of equipment."

"Preventive maintenance must be scheduled . . ."

Maintenance is a major cost consideration. In at least one case it is considered the "heart of successful manufacturing operation." One danger to beware of, say the experts: Don't get in a maintenance rut; control the frequency at which a facility needs to be maintained and remember that frequency changes as equipment grows older. Keep equipment records so it is apparent when equipment needs to be changed, has outlived its usefulness and is becoming an "albatross around your neck."

Another area of agreement is scheduled maintenance. "Don't wait until it breaks down" is the watchword.

"Reducing downtime, particularly unexpected downtime, is one of the major elements of successful cost control and the planning of preventive maintenance on a scheduled basis is one secret to carrying it out."

Some other maintenance keys:

"All our maintenance work except emergency breakdowns is scheduled one week in advance. While the percentage of completions for a particular week is not high because of interruptions, the result of this scheduling is paying larger dividends."

"To get our maintenance jobs scheduled, the foreman of a department issues a work order to the plant engineer. Each morning the engineer has a meeting with the master mechanic, plant electrician, and chief steam engineer and they go over the work orders from the previous day. This group then determines the feasibility of the work requested and whether the request requires further investigation before fitting it into the work schedule."

"In addition to regular labor cost reports, a separate report on maintenance is prepared in our mill. Most of the supervisors take a great interest in this report, particularly because in most cases they have originated the work orders which develop into costs charged to their departments."

"Some people go overboard in the so-called preventive maintenance field and some take the other extreme and carry too many spares. Original design of mills or expansions should always bear the cost of maintenance and spares in mind . . ."

"Management should take a close look at the effect new equipment will have on quality and how long it will take to get the investment back. Where new equipment primarily effects savings with very little effect on quality, we would not recommend expenditures for new equipment unless we get our investment back within a three-year period."

One panelist suggests that special maintenance jobs and routine maintenance be segregated. Routine maintenance would be oiling, replacing light fixtures, routine inspection, filling fire fighting equipment, minor jobs estimated to cost less than the fixed amount per job. All other maintenance falls into the "special" category. Special maintenance is then budgeted subject to the same approvals and controls as capital and operating budgets.

"The advantage to such a system is many-fold," he says. "Plant management is forced to plan the maintenance program for the year. Where operation is curtailed, part of the maintenance can be deferred if necessary. Also, where several mills are involved, maintenance dollars can be shifted from one mill to another and still remain within the previously established limits."

"Right quality at right time at right cost . . ."

Must quality suffer in the face of stringent cost controls? The answer is that it cannot. The customer must be supplied with a satisfactory product, anything less is disastrous. If it is not possible with the equipment and materials available, the company is out of business.

As one panelist puts it: "Our viewpoint is that the role of manufacturing is to produce the right quality product at the right cost at the right time. None of these factors can be de-emphasized to the detriment of another. No one is a hero by improving the cost picture unless he also maintains quality. By the same token there are no heroes made improving quality if the cost soars."

One method of balancing quality and cost is to have a careful method of "auditing quality" just as costs are audited. Quality control, therefore, must be an independent survey of the standards of the product just as auditing costs is indpendent. This does not relieve the manufacturing department of its responsibility in maintaining quality. But quality control measures results and its word should be final.

Another warning is registered against "over-quality consciousness." Says a panelist: "One does not sell highly developed specification paper where a low grade spec is needed. Over specification is costly . . ."

Says another: "A constant effort must be applied to substitute less expensive materials, produce at higher rates or get increased efficiency with less waste. You can't compromise with the customers' needs, but you don't have to live with your own shortcomings and problems."

Costs and quality, says still another, are related and

COST CONTROL

The panel . . .

Russell T. Hudson
V.P.-Gen. Mgr.
Calcasieu Paper Co.
Elizabeth, La.

Harry T. Kendall, Jr.
President
Northwest Paper Co.
Cloquet, Minn.

John McPherson
Plant Mgr.
Mosinee Paper Mills
Mosinee, Wis.

L. D. Nicholson
Vice Pres.
Hamilton Paper Co.
Plainwell, Mich.

William J. Shelton
Vice. Pres.
Georgia Pacific Paper Co.
Toledo, Ore.

must always be "compromised." The word compromise connotes a surrender. In this case, he continues, cost and quality must be compromised or you go out of business.

"As an example," he says, "there was a prominent company who for years advertised that their wrapping paper would test 100% mullen as a minimum. This was a fine sheet of paper but it cost too much to produce. And the product did not require such a high mullen. Needless to say, the company doesn't make such a sheet any longer. Over the long haul, no one can afford to put quality into product at a cost which does not make him competitive."

Quality is protected in one small mill which manufactures an extremely wide range of specification papers in comparatively small orders. Here, in addition to physical and chemical control laboratories, the mill has paper machine inspectors on a 24-hour basis. They have authority to pass on all paper made during their shift, reporting to the quality control supervisor. High paper machine costs incurred by extreme quality control and frequent order changes are thus partially offset.

"Biggest cost: Labor, wood, grade changes . . ."

The three most costly items in daily production in a paper mill seem to be universal: Labor, raw materials, excessive grade and weight changes.

One panelist offers ways for tackling high labor costs:

"Our payroll is kept on an IBM machine and daily reports are made to the mill manager's office giving distribution of the labor cost for the previous day. This cost is summarized weekly and each department head gets his cost by the name of the individuals charged to his department—the hours and dollar cost.

"We have found this to be a great help because the supervisors are kept informed, not only of their own department's people, but people who did not work and were charged to the department for the previous week. At the end of each month each supervisor receives a monthly report showing his direct, indirect and maintenance labor for the previous month.

"In addition to the costs mentioned above which are kept on an IBM machine, the mill manager receives each day the number of direct labor employes who worked in each department the previous day. This report shows the considered maximum number of people that should have worked in the department and if the number worked is greater than the budget, the reason for the increase is discussed with the foreman of the department."

Reducing the cost of wood is a problem which the industry lives with constantly. Continuing effort is being exerted to cut these costs. One panelist points out how changing the wood-purchasing system effected increased savings:

"Starting two years ago, all chips purchased from outside sources were purchased by weight rather than volume. Recently we started weighing all logs and other wood by weight. This permits better control because prices based on volume were found to be very inaccurate. The variation in the same size car of chip would be as much as 15% when weighed. It is fairer to both the mill and the supplier to buy by weight, not volume."

Still another costly item is excessive weight and grade changes, especially on large machines. Another panelist offers this panacea:

"A large machine cannot afford to change grades for a 25-ton order. This can be controlled by carrying an inventory of full width reels or rolls, if business is repetitive. In other words if a machine receives a 25-ton order, this quantity should be increased sufficiently to set-up a run the mill can live with cost-wise. Ship the order and store the rest. This also helps control the quality of order uniformly, which is extremely difficult when making excessive grade changes."

"Cost should be known on every grade."

In the final analysis, cost control seems to depend on people more than paperwork for its success. Without exception, the importance of good managers, smart supervisors and informed, eager men-on-the-job were stressed by all panelists as a goal in achieving good cost control. It was perhaps best expressed by one panelist:

"An informed man is an intelligent man and an intelligent man is one who will take cognizance of the problems at hand and contribute in some way toward their accomplishment."

"Budgeting begins in the sales department . . ."

The problem of establishing budgets for the coming year evoked several ideas from panelists. One believes the planning should start with mill personnel, another that it should begin with the sales staff.

"Budgeting begins with the sales department which has responsibility for preparing budgeted tonnage and sales realization for each grade of pulp and paperboard they expected to sell. This budget must detail the domestic sales region or foreign country in which the sales are to be made and anticipated realization. The sales depart-

Cecil Taylor
Gen. Mgr.-Mfg.
Columbia River Paper Co.
Portland, Ore.

James A. Wilson
V.P.-Mill Mgr.
Publishers Paper Co.
Oregon City, Ore.

Irwin A. Zuckerman
Exec. V.P.
Hudson Pulp & Paper Co.
New York City, N.Y.

ment also budgets expenses of their department to sell the tonnage. These budgets are then submitted to the next level of management for approval.

"From there it goes to the mill manager for preparation of the budgeted expenses to produce this tonnage. Each department head prepares the budget for his department. Factors to be considered are raw material sources and prices, wage changes and extraordinary repairs, expansions necessary. This budget is then reveiwed and approved by the mill manager. A compete net income budget is then prepared and submitted to the next level of management . . . the approved final budget becomes the operating budget for the coming year.

Another panelist offers this suggestion:

"Budgets should be set in consultation with each supervisor . . . should include all direct charges . . . labor, supplies, maintenance, overtime, miscellaneous charges . . . service charges like steam for heat, for process, electrical power and locomotive and crane service and non-controllable expenses. In addition, materials such as salt cake, lime, wood and the like are budgeted and analyzed monthly. Departmental budgets are shown as expected cost, actual cost and monthly variance. When possible, actual quantities should be shown, for instance thousands of pounds of steam used for crane hours . . . Items of importance that are obtainable weekly are reported through each Thursday . . . items like yield, sewer losses, salt cake utilization, btus consumed, etc. Deviations can be checked more frequently that way."

"Over specification is costly . . ."

Like quality, purchasing new equipment must also be a "compromise." It can never be determined on cost alone. How are the various factors involved in equipment purchase related?

"Aesthetics, utility, dependability and need must all be considered and given proper weight when purchasing new equipment," answers one panelist. "It is rather hard to relate these fringes in an objective manner but they must be considered and are done so by the so-called intuitive purchaser."

Another panelist has a broader viewpoint: "New equipment is purchased for needed replacement to keep a facility running, to keep quality at a level the customer will accept, and for the protection of health and safety of the employes. It can also be obtained when the capital expended can be returned in less than five years. If there is any money left, buy some chrome for the Cadillac . . ."

Still another answer is offered by this expert: "Investments in machinery which save labor and other costs are evaluated in the same manner as projects which increase sales. Return on the investment must be computed, usually by the discounted cash flow method. But it should be recognized that computed results are made on the basis of assumptions and are no better than estimates."

Another offered this advice: "Three factors are important when purchasing new equipment. First, it is necessary to replace completely worn out equipment even though there will be no material profit in making the change; second, by increasing production, how long will it take to pay for the new equipment; third, what effect will new equipment have on quality of product and will it broaden the market because of improvement of old product or a new product? There are always many new improvements a company would like to own, but management must determine to the best of its ability what equipment will do the most for the company."

"Cost information must be easily understood . . ."

A lively response was generated from one panelist when asked: "What general practice relating to cost control is antiquated and should be discarded?" His answer: "Accounting for accounting purposes only."

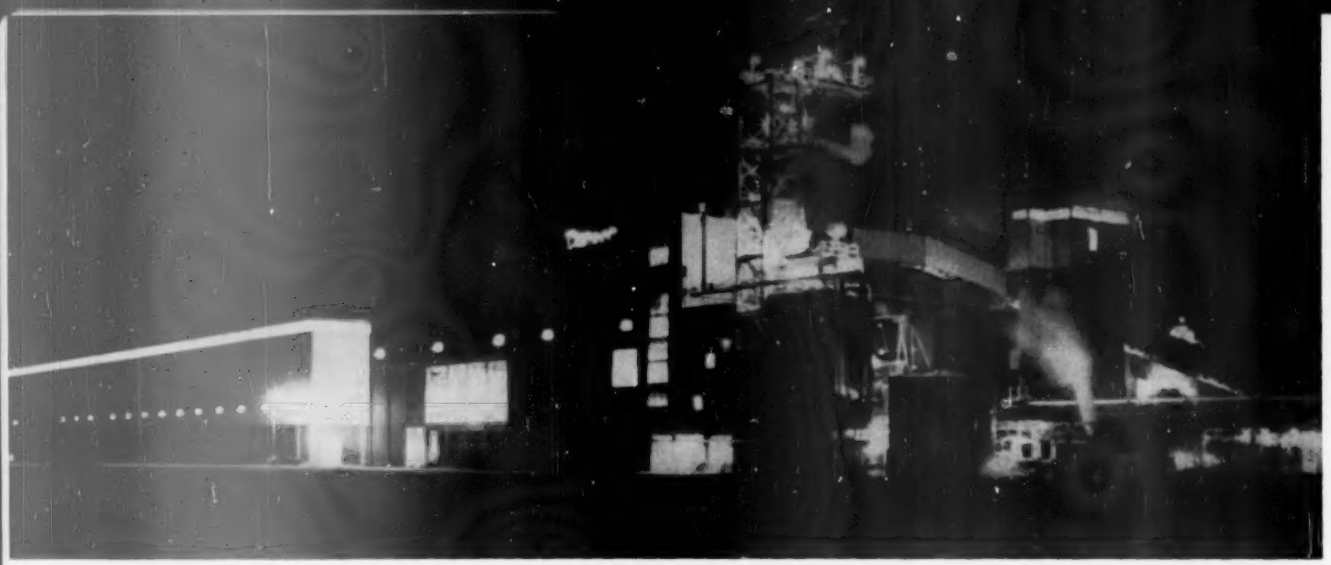
Commented the expert: "The accountant is imbued with the double entry system of balancing everything out to the last penny. As long as he has one column to debit in and another one to credit in and it all comes out even, he has done his job. As a convenience, the accountant uses catch-all cost centers and sets up so many reserves that the poor department head can never tell where he is. While reserves, indirect charges, depreciations, etc., are certainly academic interests to any department manager, they serve no purpose whatsoever in aiding the manager to keep close control over his departmental cost. As a matter of fact, when a paper mill superintendent sees that he has saved some 10 cents a ton on his wire costs over the past several months, but sees that a salesman's convention indirect charges have been thrown into his department running his cost up some 60 or 70 cents a ton he tends to say what's the use . . ."

Another comment on "old-hat" ideas: "We don't do it anymore, but keeping costs hidden from people who can help control them is stupid. It's an old practice and should have gone out with the bustle. It's still practiced; maybe because it's just human . . ."

"Breakdowns and additions are like taxes . . ."

Sage advice is offered by one panelist in dealing with breakdowns:

"Breakdowns or necessary additions are like taxes . . . they will always be with us. If an analysis of the cause is worthwhile and something can be gained in the way of prevention in the future from it, analyze carefully and apply the lessons. Don't cry over disasters that happened yesterday. History can't be changed. Don't let it happen again tomorrow and get going in a positive way. Too much effort is wasted in crying over what might have been and who was to blame. Who cares—get on with the game. Breakdowns affect costs negatively, but don't let them have the same effect on you or your organization. You must maintain a positive attitude despite negative factors."



IMPRESSIVE AS IT IS TO NAKED EYE, Continental Can's new $40 million mill near Augusta, Ga., has an exciting technical

Flexibility Keynotes Continental

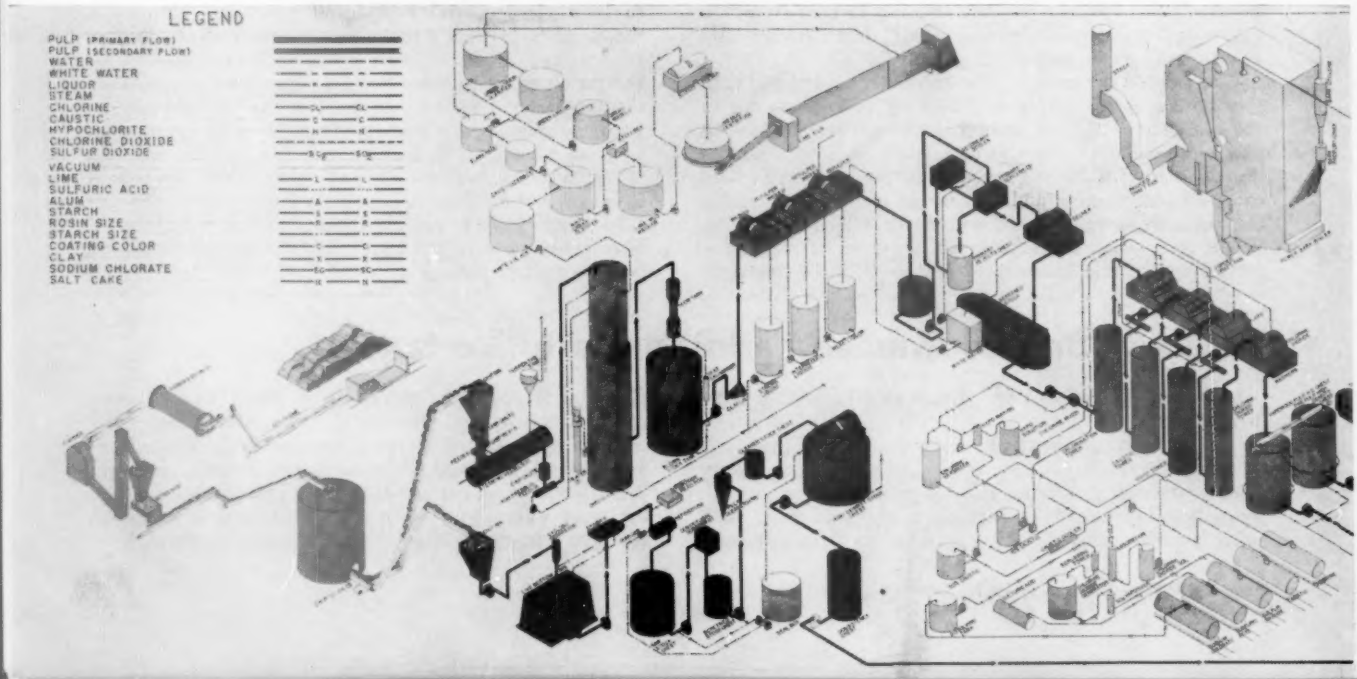
FLEXIBILITY AND VERSATILITY . . . these key-words describe Continental Can's new $40 million bleached foodboard mill at Augusta, Ga. Promising to be a pace-setter, it is the first new Southern pulp and paper mill to start-up in the Sixties.

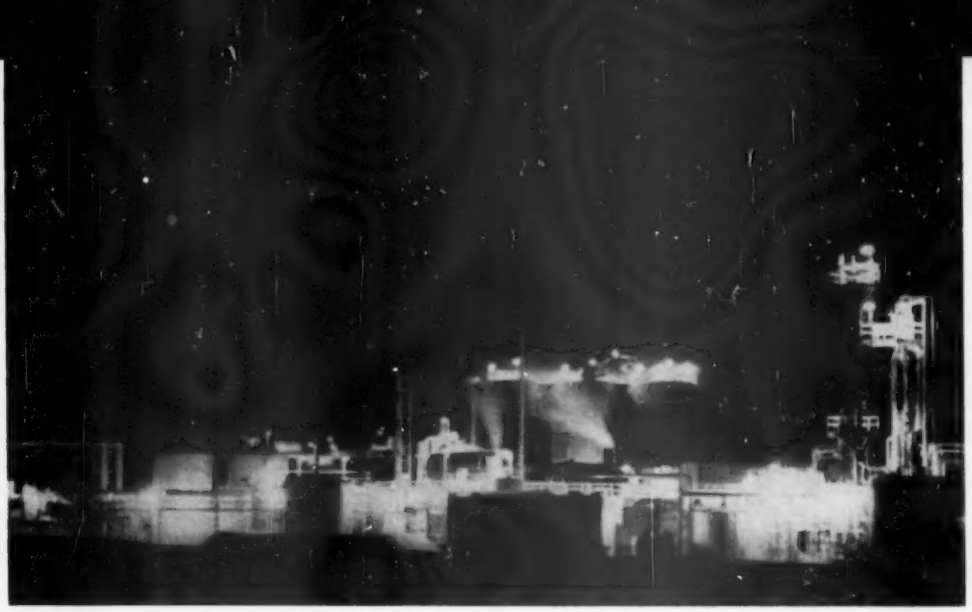
Versatility is provided in its design which can utilize both hardwood and softwood; continuous kraft and cold soda pulps; bleached and unbleached pulps; coated and uncoated grades.

Flexibility comes with its terrific product range, directed toward production on high quality standard foodboards at operating costs below average.

It is a mill which certainly bears watching. If successful, it will certainly bear imitating.

BOTH OF MILL'S OUTSTANDING FEATURES—flexibility and versatility—are quickly apparent in detailed





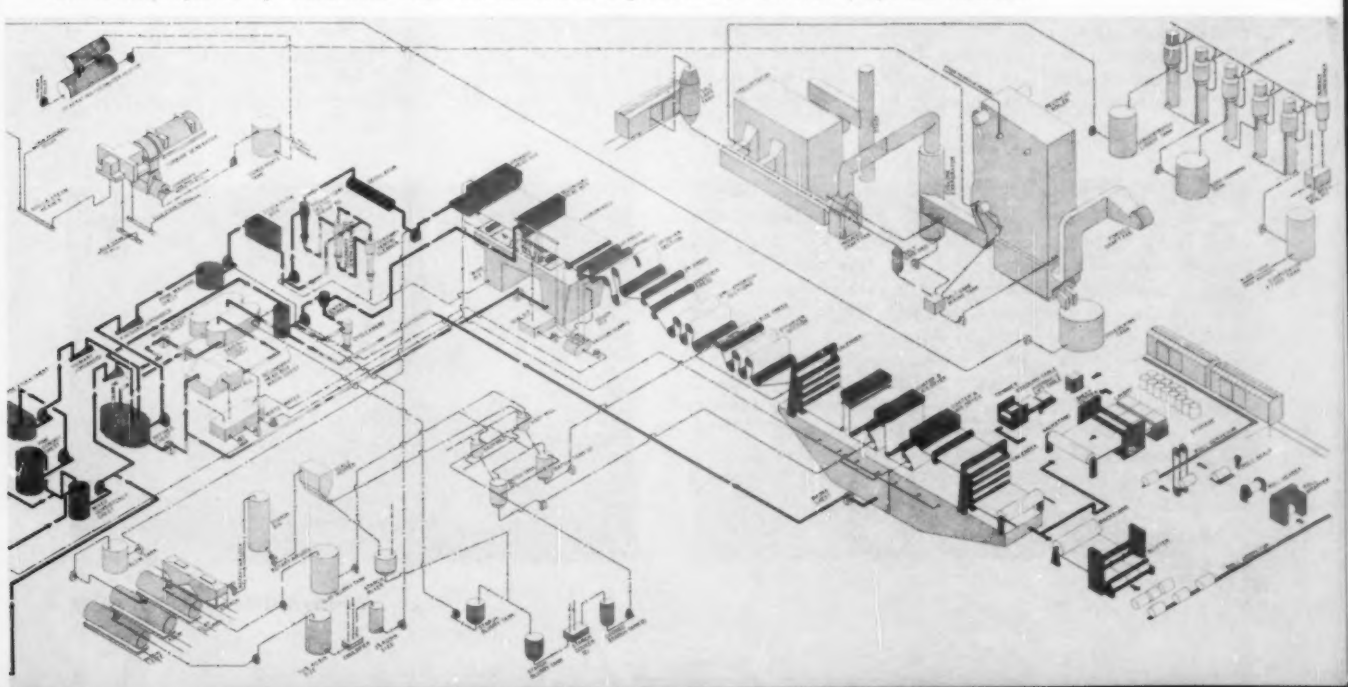
side which must be studied to be appreciated

Can's Augusta Foodboard Mill

Some features to see and read in this article:

1. 400-ton Kamyr continuous digester has cold blow and diffusion extraction.
2. Cold soda pulp is refined in single stage, bleached in the refiners.
3. Flexible jordan header system permits any stock combination on top side, base sheet from any high density storage tank.
4. Power is controlled from central location.
5. Machine features two headboxes, horizontal size press, on-machine Champflex trailing blade coaters, high velocity air drying.
6. Four-stage bleach plant has upflow retention towers, high density storage.
7. Finishing is designed for minimum handling.

flow sheet prepared by Continental Can. Schematic drawing shows how different pulps are handled.



Continental's Augusta Mill . . .

PULPING

Continuous digester combines with hot stock pre-breaking, cold caustic soda pulp for high flexibility, low costs

The dual feed 400 tpd Kamyr kraft continuous digester produced first class pulp from the start, with better than average mullen and tear, says Charles "Chuck" Ray, pulp mill superintendent. A special feature of the 102-ft. high digester, largest made to date by Kamyr, Inc., is diffusion extraction.

Diffusion extraction is cold liquor, introduced into the lower level of the digester. It permits blowing at lower temperatures, about 240°F, for more uniform cooling resulting in a better quality pulp. This cooling is better known as "cold blowing" and uses spent black liquor from the brown stock washing system. A high pressure pump moves it through a small central pipe inside the two heating zone central pipes and discharges the liquor into the chip mass at the top of two slotted strainer plate sections.

With the addition of this cool liquor, the hot solids liquor is displaced and extracted through a set of screen plates, nozzles and a header to a flash tank, where the hot liquor is flashed at 15 psi and the resultant flash steam goes to the pre-steaming vessel.

Although this 1:1 displacement gives maximum heat recovery from the system, it does not sufficiently lower the temperature of the chips to a point where degradation cannot occur. Therefore, additional cooling is added and extracted to a second flash tank where the liquor flashes at 5 psi. Also, liquor from the first stage tank flows to the second flash tank and flashes at 5 psi. This steam can be piped with the relief from the steaming vessel to a condenser for production of pulp mill hot water.

This system allows the stock to leave the digester shell at approximately 240°F, well below the temperature where degradation can take place. Although installed primarily for uniform cooling with maximum heat recovery, diffusion extraction also results in improved brown stock washing. This is because the high solids liquor (about 21% at Augusta), are removed from the system before it goes to the washers and are sent directly to the five-effect Swenson evaporators. This reduces the load on the washing system. In effect, this is said to result in a partial washing stage in the digester shell.

In the continuous cook system chips are drawn from the silos on a 30-in. wide rubber belt conveyor to two chip hoppers equipped with Syntron vibrators above the dual low pressure feeders. After retention time of 3 to 5 minutes in the pre-steaming vessel at 15 psi to drive off entrained air and insure that chips will sink as soon as they enter the digester, the chips drop by gravity through a chip chute to the brains of the Kamyr system, the high pressure feeder.

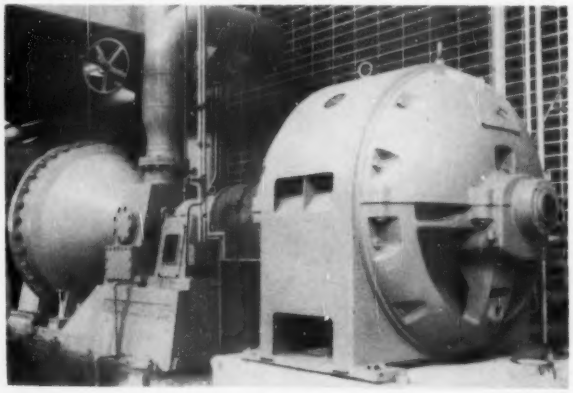
It is the successful use of the high pressure feeder which has eliminated blowback problems in the Kamyr system and permits moving of the chips from the 15 psi zone to 165 psi hydrostatic working pressure of the digester.

The digester has a chip volume of about 11,400 cu. ft. and a liquor volume of 95,000 gallons. It is 12½-ft. dia. at the upper penetration zone and 13-ft. at the lower or cooking zone. Retention time in the digester is about 3½ hours. Actual cook is about two hours. In the upper penetration zone, retention is about 40 mins. at 240°F.

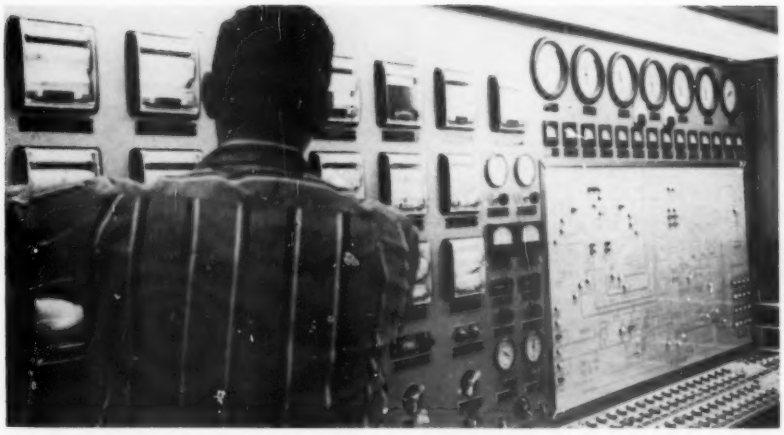
Two independent liquor circulating and heating systems raise the cooking temperature in two steps. Following this rise to temperature the chips are held at cooking temperature for one hour and are then prepared for discharge by the cooling method to avoid stock degradation by mechanical action.

The digester discharges to a small "wasp-waist" blow tank, about 500 tpd capacity, at 15 psi and then into the 35,000 lb. capacity blown stock tank at atmosphere pressure.

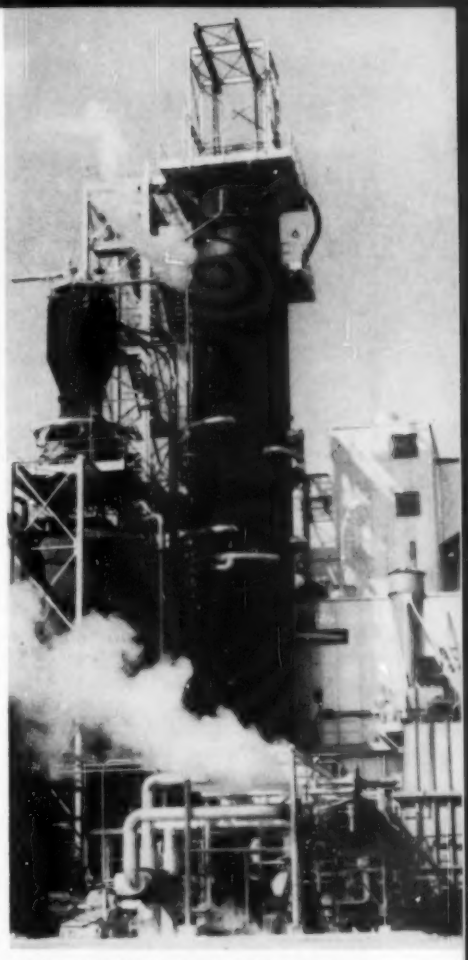
Vertical liquor tanks are used for maximum deaeration with excess foam going to a foam tank. The primary stage tank and foam tank have mechanical foam breakers. In the liquor tanks the dropleg from each washer enters a centrifugal seal pot for air removal. Physical location of the liquor tanks requires long horizontal leg lines but does not materially affect vacuum on the washers.



SUCCESSFUL USE OF HOT STOCK prebreaking ahead of washing at Southern Paperboard's Pt. Wentworth, Ga. mill resulted in use at Augusta. At left, brown stock from Kamyr is brushed lightly in a single Emerson Claflin refiner to break up knots and large unfibered materials. No chip breakers or deknotters are used. Brown stock is then pumped direct to inlet box of three countercurrent washers covered by Mead Board sales hood. Sheet dilution off No. 3 washer is controlled by a sheet thickness gauge. A departure from tradition is use of single-stage refining using single disc refiners at higher-than-usual 700 hp. Single stage refining in Sprout-Waldrons, picture three, is used for high freeness in full development of foodboard type pulps.



ALL KAMYR COOKING OPERATIONS are easy to see on schematic panel.



TWO PULPS ARE MADE: kraft in Kamyr continuous digester (left) and cold caustic in live bottom bin (right).

The low density (4-5%) washed stock chest is unusual. Of Noble and Wood design, it has a patented midfeather and two horizontal propeller agitators, one above the other for thorough blending and consistent agitation. The bottom agitator is 50 hp, 54-in. dia. Above it is the high level 30 hp, 48-in. dia. agitator. The low density chest is 47-ft. i.d. by 25-ft. high.

From this washed stock chest, stock is pumped to a fan pump which dilutes stock at screening consistency to a headbox feeding three Impco A-44 centrifugal screens. Rejects are pumped to an A-25 secondary screen; accepts are returned to the primary.

Of special interest is Continental Can's method of treating secondary screen rejects. They are pumped to 2 Link-Belt vibrating screens, to a Sprout-Waldron 450 hp refiner and through a Hooker chlorine mixer which bleaches the rejects. Stock is pumped to a washed stock chest for further mild extraction.

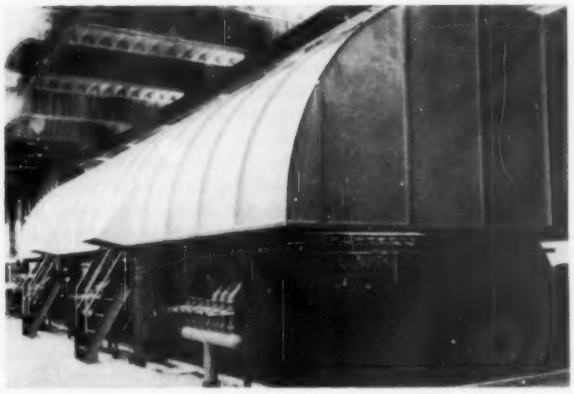
The primary screens are followed by a vacuum decker with washing showers to further reduce dissolved solids in the pulp.

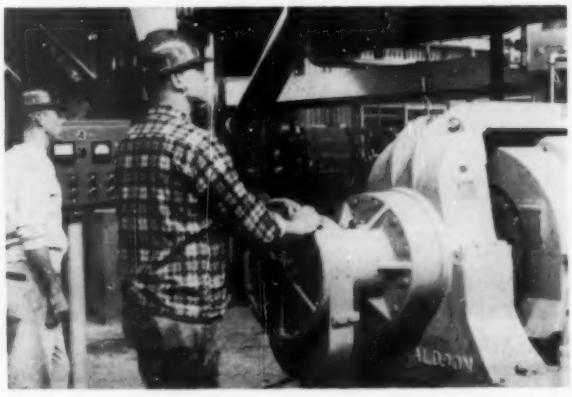
The 125-tpd cold caustic soda pulping system is a Sprout-Waldron installation. A live bottom bin is used for atmospheric steeping of the chips, results in ease of operation and maintenance.

Hardwood chips from the silo are moved along a 20-in. wide rubber belt conveyor to a storage bin, then through a Sprout-Waldron chip fractionator which reduces the size and opens up the chip for better liquor penetration.

Chips are blown to a cyclone over the sealed live bottom bin for 60 minutes (30 mins. submerged) retention in the dilute caustic liquor. After soaking, chips are pumped to a drainer conveyor and to a screw conveyor and to the six Sprout-Waldron single disc refiners powered by 700 hp GE motors. Hydrogen peroxide bleach liquor is added just ahead of the refiner. This is based upon the Becco method.

Refined pulp is pumped to one Impco A-44 centrifugal screens, drop to a screened stock chest and are then pumped to a battery of 38 Bird Cycleans (32 primary, 5 secondary and 1 tertiary). Rejects are returned to the live bottom bin. Accepted stock is pumped to a cleaned stock chest and then to an Impco 11.6 ft. by 20 ft. type 304 stainless steel decker on top of a 34-ft. by 70-ft. high density stock chest. The decker is fitted with the new synchro-roll discharger especially designed for positive removal of thin sheets.





Continental's Augusta Mill . . .

BLEACHING

Four-stage upflow plant has interchangeable sequencing, with one stage of ClO_2

Of special interest is the flexible and versatile Impco four stage upflow bleach plant. Normal bleaching sequence is chlorine, hypo, caustic, caustic extraction and chlorine dioxide (produced by a 3 tpd Olin-Mathieson unit). Sequence can be varied by interchanging the second and third stages.

A completely new arrangement transfers stock from the washers through steam and chemical mixers to the top of the towers. The standard feed is eliminated and the thick stock pump is placed at the end of the conveyor which receives stock from the washer. Further economy was effected by eliminating the shredder normally used at this point. Instead, a high speed breaker conveyor with an overextension delivers the pulp direct to the eye of the thick stock pump. This arrangement places the pump on the operating floor.

Steam and chemical mixers operate under pressure allowing air-free mixing and maximum steam economy.

The high density upflow bleaching tower has a "dry" discharge at the top and delivers, by a rotating scraper, the pulp to a chute which drops by gravity into a swirl mixer of Impco design, slightly above the washer elevation. Dilution water for washing is added tangentially in the swirl mixer. Result: No launder dilution water has to be pumped to the top of the tower, a considerable saving in horsepower; by adding dilution at a point only slightly above the washer level, air entrainment is avoided, allowing higher drainage rates on the vacuum filter with better wash water displacement and higher discharge consistency.

Metered pulp at 3½% consistency enters the bleach plant from the low density screened stock chest through a safety loop and passes through an Impco line mixer where metered gaseous chlorine is added. The mixer is next to the 18-ft. by 66-ft. chlorination tower. This low consistency tower is the pump-through type using three Impco circulators. The closed top design of this tower is another effort to eliminate launders as such.

From the top of the closed tower, pulp is delivered to a stainless steel chlorination washer. Each bleach washer has a fiberglass hood. As the washed and thickened pulp leaves the chlorination washer, it falls into the breaker where it is shredded "dry" and delivered to the Impco thick stock pump. From the pump, stock passes through steam and chemical mixers on the floor below the washers then to the base of the first upflow high density tower, 10-ft. dia. by 88-ft. high.

NEW 60 DEG. CONE BOTTOM UPFLOW bleach tanks are among many of the new features being used at Augusta mill, have proven retention worth.

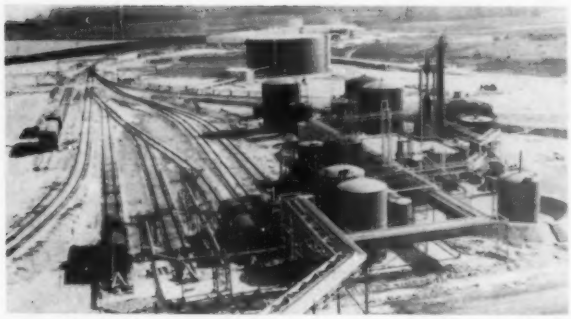
OPERATING FLOOR of bleach plant is at minimum height (42 ft.) necessary to take advantage of barometric leg of vacuum washers.

The final stage chlorine dioxide high density tower uses two single shaft mixers. The first in series is a steam mixer and the second is for C102. Continental Can reports there have been no plugs in the high density towers since operations began.

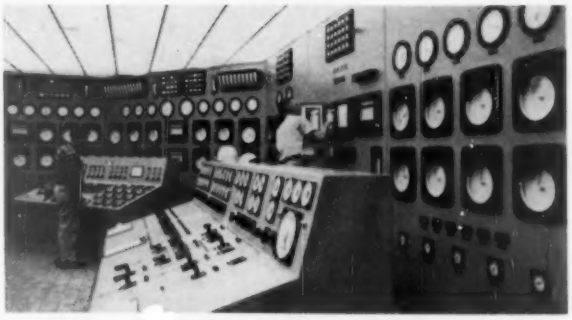
Pulp from the last bleach washer is delivered by belt conveyors to four 30-ft. dia. by 60-ft. pot type high density storage towers, each fitted with circulators. The fourth tank is for the Deerfield Glassine mill.

A Continental Can Co. innovation is the use of Black Widow photoelectric cells mounted on the walls of the hypo and caustic towers to control the addition of bleaching chemicals. After seven minutes' retention time, the operator can tell the amount of bleaching chemicals needed.

Pulp is drawn on demand by the paper mill from two consistency chests; 12-ft. by 20-ft. for mixed pulps and 20-ft. by 20-ft. for pine. It is pumped out of the high density tanks intermittently by a level control on the consistency control chest. Advantage of this feature is that the mill can pump at widely varying rates out of the high density towers and shut down until the consistency chest gets low.



CENTRALIZED CHEMICAL preparation area



POWER PLANT control center

CHEMICALS AND POWER

Chemicals are prepared in one area. Power plant is centrally controlled.

Economy is provided once again in centrally located chemical area, which features individual rail spurs and unloading stations for different chemicals. Also in this area is the 3 tpd chlorine dioxide generating plant, batch tall oil system and hydrogen makeup. Large tank at rear of area in picture at left is fuel supply tank and behind it is new Deerfield Glassine mill. The standard Dorr-Oliver causticizing system uses a Smidth lime kiln, 250 ft. long, 8 ft. dia. It has 150 tpd capacity and about 10% fresh lime is used in makeup. Four Accu-Ray beta gauges are used to measure continuously and automatically the percent solids on the output of the white liquor clarifiers and mud washers. These units transmit their signals to a preamplifier which sends them to control panel. By this series of remote indicators, automatic control is achieved.

Striking feature of power plant is its gigantic centralized control room, above left. A single generator, large enough to supply power to Augusta (100,000 pop.) runs the entire plant. Steaming capacity of plant includes combination bark and oil or gas unit designed for 400,000 lbs./hr. at 875 psig and 900°F. The five-effect 750 tpd Swenson stainless steel evaporator has provision for a sixth effect. The 32,000 kva GE double extraction turbine condenses at 180 psig and 80°F. Plant is believed to be the first using Forney burner control system providing maximum safety in furnace operations.

STOCK PREPARATION

Jordan header system permits multiple refining sequences

The high density pulp storage area is completely controlled from the stock panel next to the paper machine. The jordan header system is extremely flexible so that the mill can refine stock in any series they desire. With this system it is possible to run any pulp base on the top or bottom side from any high density storage tank. Any jordan can be removed from stock flow at any time for maintenance.

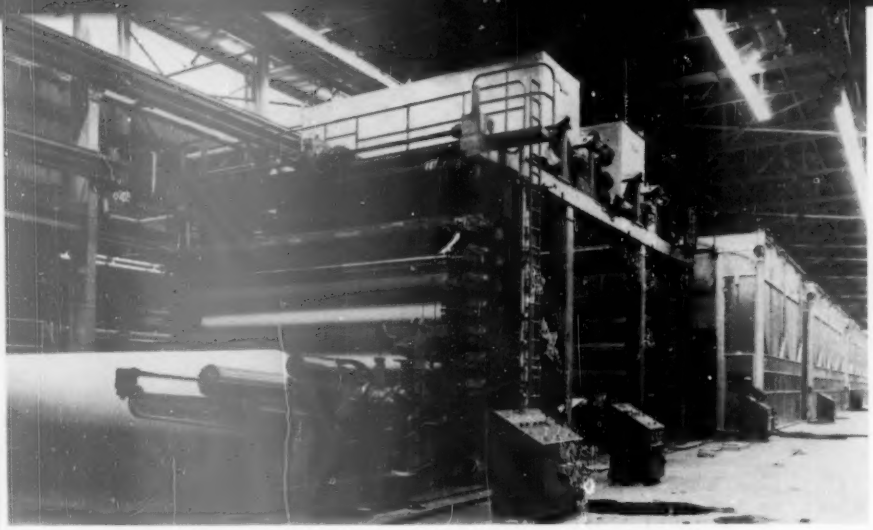
Very important too, on the jordaning system, is that with a minimum of piping and one or two DeZuriks, the mill is able to pump directly from the high density storage chests to the machine chests, which enables it to bypass all stock chests and jordans and change colors on the run. From a cost standpoint, this means the mill can eliminate two to four hours' shutdown for washing up with just a minor loss in production. This is something the industry has been working on for years.

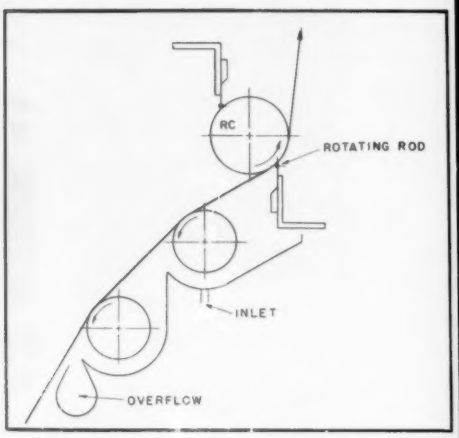
The chemical additives rooms, including coating preparation, are in one building, permitting the operator to give more attention to the preparation of chemicals. This has been described as a smart move by Brookshire Moore, paper mill supt.

EIGHT JORDANS, 5 primary and 3 finishing, prepare stock for machine.

A Sprout-Waldron bulk handling system eliminates bagged starch. Some bag materials will be stored adjacent to point of use.

Coating materials are run through high speed Kady mills, stored in large storage tanks before being pumped to point of use at size press, calender stacks and coater stations. All materials at each station are recirculated at high rates and continuously screened. All wet end additives are handled in bulk and are under control of one additive man.





Continental's Augusta Mill . . .

PAPER MACHINE

It has two headboxes, size press, hot press, coating, air cap dryers and closed hoods

All the flexibility and versatility that have been engineered and designed at Augusta, beginning with the flow of wood and continuing throughout the mill, culminate at the paper machine. It is here that all these innovations, combined with additional new ideas, come together to fulfill the hopes of Continental Can for a high quality foodboard mill at less than average operating costs.

The paper machine is designed for either single and/or double coating with bleached and/or unbleached furnish on either top or bottom base sheet; 100% pine, 50% pine-50% hardwood or 100% hardwood.

The 600-ft. long Beloit paper machine has a 157.5-ft. long wire, 236-in. wide, and trims 216-in. There are two pressure headboxes. Through an automatic continuous stock proportioning system, the mill can ratio stock to either headbox.

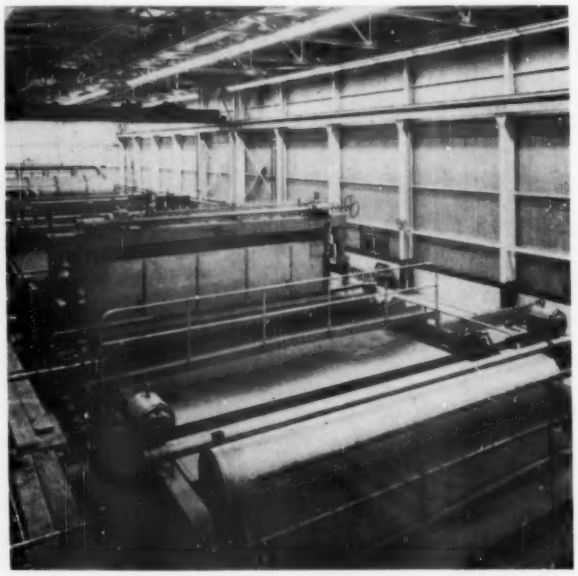
The machine has a suction couch, lumpbreaker roll, first and second presses, 6 pre-dryers, a hot press, 74 paper dryers, a 300-ft. long dryer section; 6 Feeney dryers; 6 felt dryers, horizontal size press and breaker stack.

A General Electric 1500 hp steam turbine drives the machine through a Beloit differential drive.

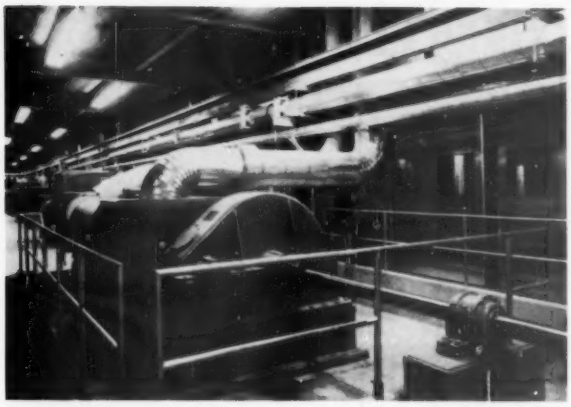
All wire return rolls on Fourdrinier are fiberglass covered and all table rolls will be fiberglass covered.

The Ross paper machine hood which encloses the dryer sections has four sections: 16-ft.; 115-ft.; 60-ft. and 32-ft. The aluminum hood has Herculite wire glass windows at eye-level running the full length of the hood. There are also observation windows on the drive side of the machine.

The second, third and fourth hoods have Dew Point control. These units on top of the hoods measure humidity inside the hood and when the humidity changes to a certain point, the controls automatically open the dampers in the exhaust system. These controls regulate the dampers for more even drying. If the web breaks, the dampers automatically open to prevent negative pressures from building up.



NERVE CENTER OF MACHINE'S VERSATILITY is its wire (at right), which has two headboxes and can use complete pine furnish, complete hardwood or mixture of both. It can also produce sheet with bleached or unbleached furnish on top or bottom. Stock is ratioed to both boxes from automatic stock proportioning system. The hot press (center) takes advantage of low viscosity of water at higher sheet temperatures, allowing higher nip pressures to remove water from sheet. This water would otherwise be removed by conventional evaporation. Horizontal size press, right, provides "kitchen clean" operation, size press coating.



FIRST BLEACHED FOODBOARD RUN (far left) is caught by PULP & PAPER's camera. Space between calenders is for two Champflex coaters. Coating will be dried by two Beloit air cap dryers on top of framing between calenders. Champflex blade coater is (center sketch) improved design of Champion rod coater. Rotating rod is chrome plated for long wear and rotates at 10 to 20 rpm against web travel direction. Four-section hood has Herculite glass windows. GE 1500 steam turbine (right) drives machine through Beloit differential drive. Notice aluminum piping and sight windows on back side of machine.

Completely automatic filters on air makeup systems, calender cooling and bottom felts is believed to be a first at this mill. By completely filtering air, this prevents any contamination from getting onto the paper web, which is so important for foodboard.

The Ross trim conveyor system is the largest one they have installed, for 47 lb. board at the re-winder.

Two Reading machine room cranes expedite downtime for maintenance. More work can thus be done in a shorter time and more changes can be scheduled when the machine is down. Also, the full width paper machine reel can be pulled out from the paper machine and transferred through an opening in the floor to a Clark-Aiken 226-in. cutter.

The two calender stacks, 8-rolls each plus a king roll, are equipped with steam joints for water finishing.

Vacuum requirements are provided by four Nash vacuum pumps with dual pressure outlets. Each pump is the equivalent of four vacuum pumps. Two 600 hp GE motors are on each pump. Vacuum pumps discharge to a seal tank.

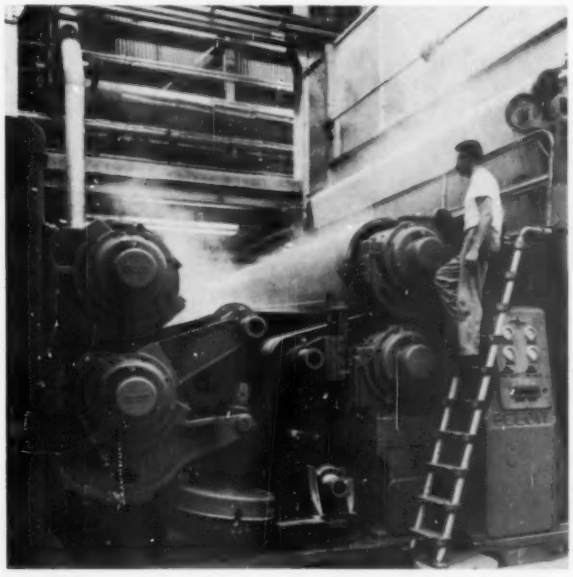
The current coating controversy between on-machine and off-machine coating is sure to be heightened with Continental Can Co.'s selection of on-machine coating. In making this decision, Continental Can sought a good print quality with a minimum of coating since coated bleached kraft board today seldom sells for a higher price than the same board uncoated.

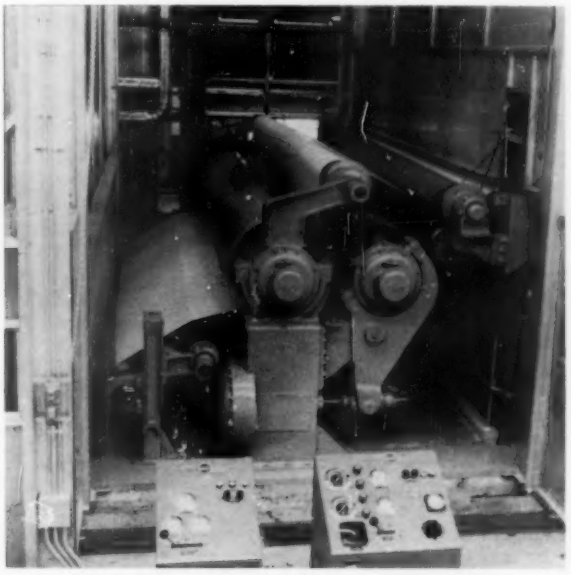
After many laboratory trials, it selected the Champflex coater (a variation on the trailing blade coater using the famous Champion rod coater principle) to be located between the machine calenders.

Continental Can's approach to on-machine coating is a definite departure from tradition. The company discarded as impractical the idea that the coater should be tailored to the paper machine. Instead, Continental Can decided that the whole mill operation should be tailored to the coater. This includes the pulp mill with its two pulps, the versatile bleach plant, the flexible jordan piping system, the two paper machine headboxes, the use of smoothing press, hot press and size press.

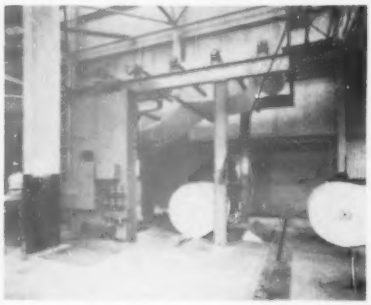
This combination of flexibility and versatility featured in this article will result, Continental Can believes, in cost and quality advantages that ordinarily belong in off-machine coating with all of the advantages of on-machine coating.

Continental Can is able to use an unbleached base sheet, top it with a thin layer of bleached kraft, add size press coating and then single or double coat, on the felt side with the Champflex coater.

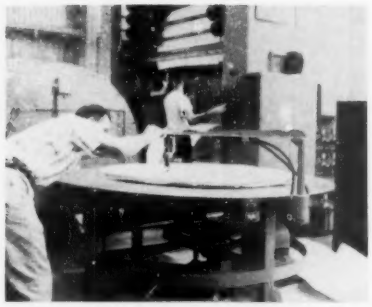




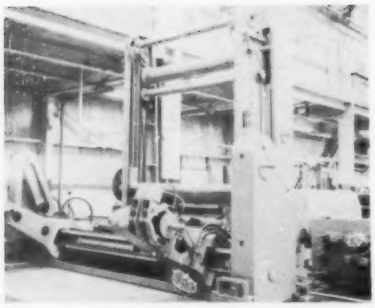
Continental's Augusta Mill . . .



AUTOMATIC ROLL WRAPPER is near machine winder, eliminates extensive conveyor system.



ROLL HEADER GLUE is applied by this automatic unit. Headed roll is weighed enroute.



REWINDER is positioned behind machine winder; is served by simple conveyor system.

FINISHING DEPARTMENT

Trims cost by trimming waste motions

"Board finishing costs are a frightening item," says Finishing Superintendent John D. Robinson. Because of the ability to profit from the experience of other mills, the opportunity to use newer equipment and incorporate more efficient designs, Continental Can believes it will be able to make significant strides in bleached board sheeting.

"We hope," explains Mr. Robinson, who is an authority in finishing, "to eliminate the necessity for trimming the majority of paper that normally has been trimmed off the rotary cutters."

From Beloit true tension winder

rolls to be wrapped discharge by a lowering device to a 48-ft. long shuttle conveyor mounted flush with the floor. At the end of this conveyor rolls move at right angle down a slight slope to the automatic roll stop.

A Cameron 80-in. SMP winder is positioned directly behind the machine winder. Rolls that have to be rewound are carried by another floor-mounted shuttle conveyor to the winder. The winder has an automatic pick up unwinding stand for ease in roll handling with synchronized unwind control at higher operating speeds. Pick-up arms are automatically self-centering and self-locking for safety in operating position.

Rewound rolls are returned to the shuttle conveyor that serves the machine winder and are returned to the roll finishing line.

Rolls are released by the automatic roll stop one at a time to the Williams and Wilson Ltd. roll wrapper. A floor-mounted centering mechanism automatically positions the roll for the wrapping machine and rolls are then automatically headed. Released from the header, the rolls move along a slope, are weighed and discharged to a lowerator to the storage and shipping area.

Full length machine rolls from the winder are lowered through a 26-ft. long open hatch on the operating floor to the 226-in. Clark-Aiken cutter in the basement.

Editor's Note: A full report on Continental Can's high quality, low-cost board finishing operations will be featured in our next issue. This article will be specially written for PULP & PAPER by John D. Robinson.

New ideas in maintenance

To prevent creating a department within a department, there are no day maintenance men as such at the Augusta mill. Those men who normally would be assigned to the maintenance department are rotated in different shifts throughout the mill. Under this system, a day maintenance electrician would rotate along with normal shift. According to chief electrician C. J. Case, this makes every man in the electrical department eligible for promotion and it is believed that this is a unique system in the industry.

Maintenance communications and transportation have also been arranged so that the total maintenance force is about 115 men. In addition, telephones have been placed wherever they might be working—in outlying areas, on top of tanks, in woodyard, for quick, easy communication. Maintenance men also have scooters equipped with tools to avoid waiting on lines for tools.

All craftsmen are identified by the color bars on their hats, making identification immediate.

Extensive lagooning system

To protect the Savannah river from the effects of possible pollutants, the Augusta mill has one of the most extensive lagooning systems ever installed for a plant of this capacity.

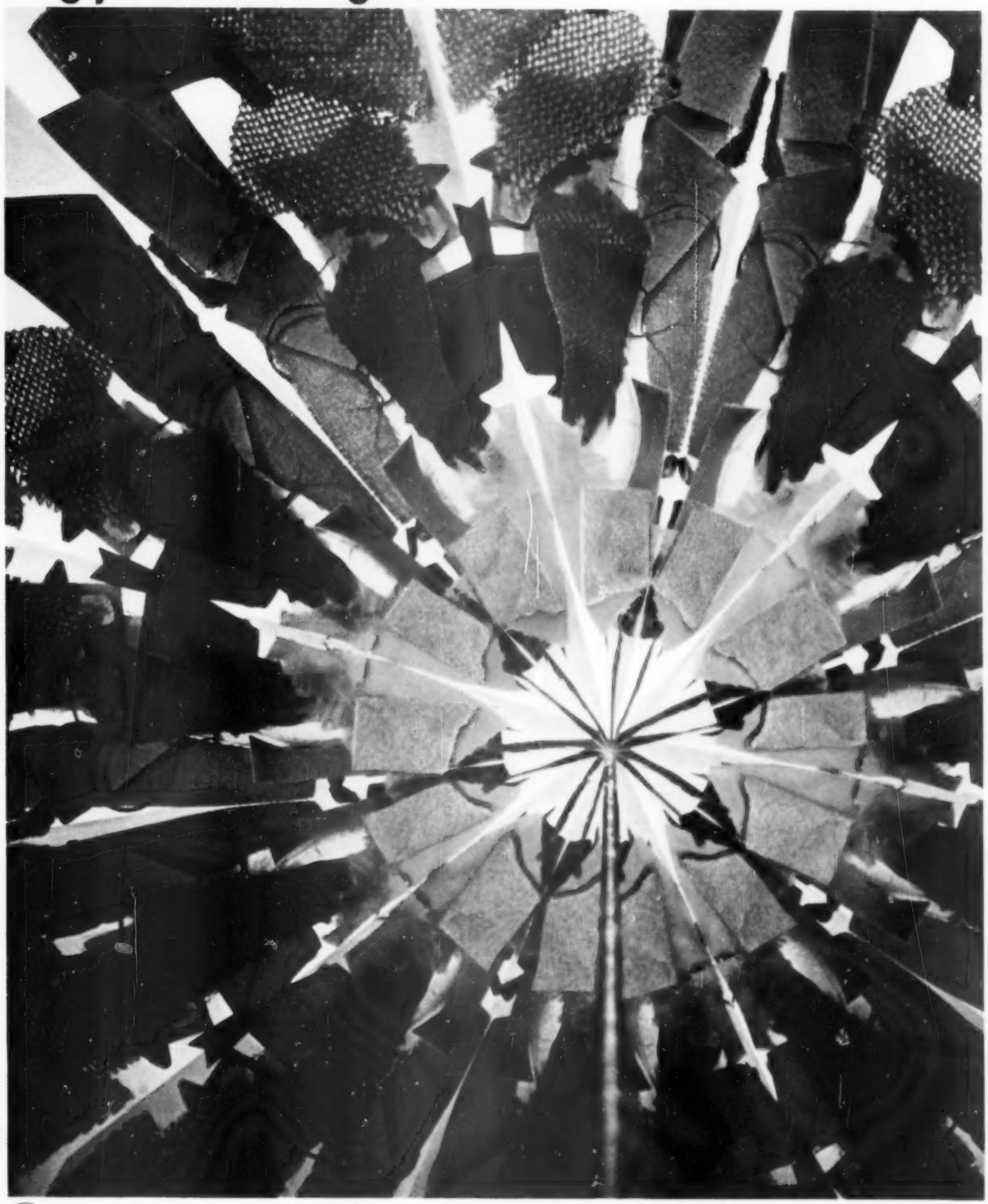
Designed to remove a minimum of 75% of the B.O.D. load of the mill by air oxidation, the system comprises five ponds with a total area of more than 770 acres. It is estimated that the time of passage from the mill to river will be about 90 days.

By using the natural contours in the layout of the ponds, extensive re-aeration is obtained by riffling between ponds 3 and 4 and 4 and 5.

For strict pH control, separate sewers are used for alkaline, acid and storm. Mill effluent is first channeled to a Graver waste clarifier, 150-ft. dia. with 180-ft. arm.

The lagooning system was designed by Continental Can in cooperation with the National Council for Stream Improvement.

Geigy offers a brighter '61



Geigy

Assurance of a brighter new year for our customers is offered through an expanded program of unparalleled technical assistance.

Geigy Dyestuffs

Continental's Augusta Mill . . .

PERSONNEL

Standing in his office which overlooks the mill buildings, Plant Manager William L. Schnorbach, makes a sweeping gesture towards the various structures and says, "All of this equipment doesn't mean a thing without the right kind of people to run it. The key ingredient in this mill, as far as I see it, is the type of people we have attracted to work here."

C. S. Huestis
Gen. Mgr.
Bleached Board Dev.

Wm. L. Schnorbach
Plant Mgr.

Echoing his sentiments, Paper Mill Supt. Brookshire Moore told PULP & PAPER, "We stressed education in selecting our paper machine crew. Educations range from high school to a master's in chemical engineering. Ten men have college degrees. This way we're building for the future."

Mill Superintendents are, from left to right, Raymond McCormick, general mill supt.; John D. Robinson, general foreman, finishing and shipping; Charles Ray, pulp mill supt.; (standing) Harold White, power plant supt.; George E. Van Goethem, asst. pulp mill supt. and Brookshire Moore, paper mill supt.

AUGUSTA MILL ENGINEERS confer on installation project with Chief Engineer Robert Ervin (third from left).

William Lane,
traffic manager

George Clossay
personnel mgr.

W. L. Coker
plant accountant
and office mgr.

TECHNICAL DEPT. from left are Vernon B. Bodenheimer, technical director; N. N. LeMaistre, C. J. Priest; James H. Smith and W. Paul Fuller.

Equipment Notes

Mill designed and engineered by Continental Can Co., Inc., Robert Gair Paper Products Group, Southern Division; in cooperation with J. E. Sirrine Co.

Construction: Daniels Construction Co.

Capacity: 350 tpd bleached kraft pulp; 125 tpd cold caustic soda pulp and 375 tpd paperboard. Woodyard designed for 600 to 700 cords per day.

Water Treatment Plant: Reactivators—Roberts; Sand filters—Graver; Pumps—Peerless.

Woodyard: Cranes—Lorain (1), Link-Belt Speeder (2); conveyor system—B. L. Montague; Blow hog—Jacksonville Blow Pipe; Bark blowing system—Rader Pnuematics; drum barkers—Fibre Making Processes, Inc.; Chipper—Hansel.

Pulp Mill: Continuous digester—Kamyr 400 tpd; Cold caustic pulp system—Sprout-Waldron; Cleaners—Bird Cycleans; Centrifugal screens—Impco; Chip hopper vibrators—Syntron; refiners—Emerson Claflin.

Washing: Washers—Impco; Washer hood—Mead Board Sales.

Bleach Plant: Upflow towers and washers—Impco.

Causticizing: Dorr-Oliver; Lime kiln—F. L. Smidth; Lime mud certrifuge—Bird.

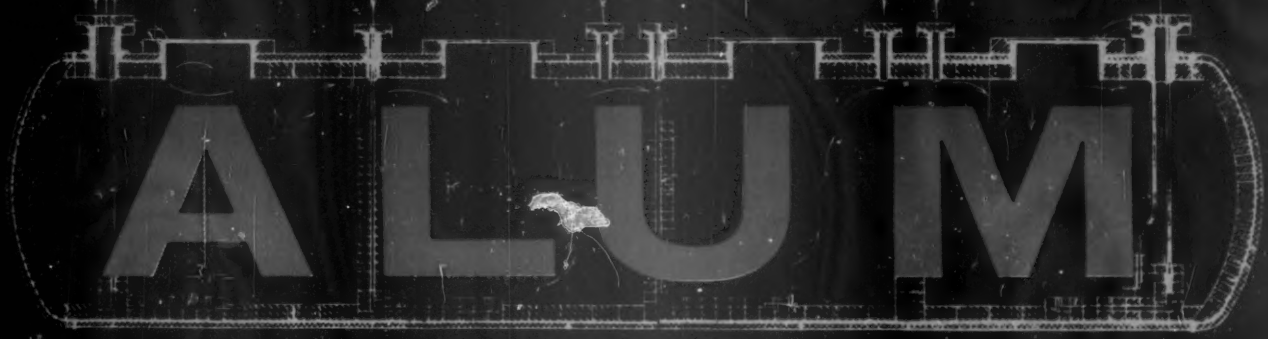
Paper Mill: Machine, coater, air cap dryers, coater—Beloit; Hood—Ross Engineering; Air system—Ross.

Stock Preparation: jordans—E. D. Jones Majestics; Three-way valves—DeZurik; Deculator—Clark & Vicario; Refiner—Emerson Claflin; Saveall—Impco; Centri-Cleaners—Bauer; Vorjects—Nichols; White water filters—Ronningen & Petter; Broke pulper—Jones; Cranes—Reading (2); Guillotine roll splitter—Black-Clawson; Dryer drainage—Mason-Neilan; Vacuum pumps—Nash; Steam turbine—General Electric.

Finishing: Rewinder—Cameron; Fork lift and roll grab trucks—Yale; Cutter—Clark-Aiken; Roll wrapping and handling—Williams & Wilson, Ltd.

Coating Preparation: Bulk starch handling—Spout-Waldron; Lightnin Mixers; Evaporator—Swenson.

General: Tile work—Stebbins; Motors—General Electric; Valves—Walworth; Stainless steel Alloyco valves on Kamyr; Tanks—Chicago Bridge & Iron; Pumps—Allis-Chalmers; Kamyr pumps—Buffalo; Instrumentation—Foxboro; Power instrumentation—Republic.



A new process based on continuous autoclaving

This new process, developed and designed by Chemico, assures significant savings in the construction and operation of plants to produce liquid and solid ALUM. Using a horizontal autoclave for the pressure acid digestion of ore, normal three-day processing time is cut to three hours. In addition, the process can utilize a relatively coarse bauxite feed (plus 8 mesh), with further savings in equipment and operating costs. Efficient, compact package plants to produce as little as 3 tons per day of ALUM are available. Other single units to provide up to 120 tons per day can be provided.

ALUM plants now in operation can achieve considerable savings in process time and process costs by changing over to Chemico-designed autoclaves when present batch digestors need replacement.

The new Chemico ALUM process has the following advantages:

- LOWER PLANT INVESTMENT COSTS
- UTILIZATION OF LOWER GRADE ORE
- PROCESS TIME CUT FROM 3 DAYS TO 3 HOURS
- 30% LESS SPACE REQUIRED
- SMALL PACKAGE PLANTS AVAILABLE

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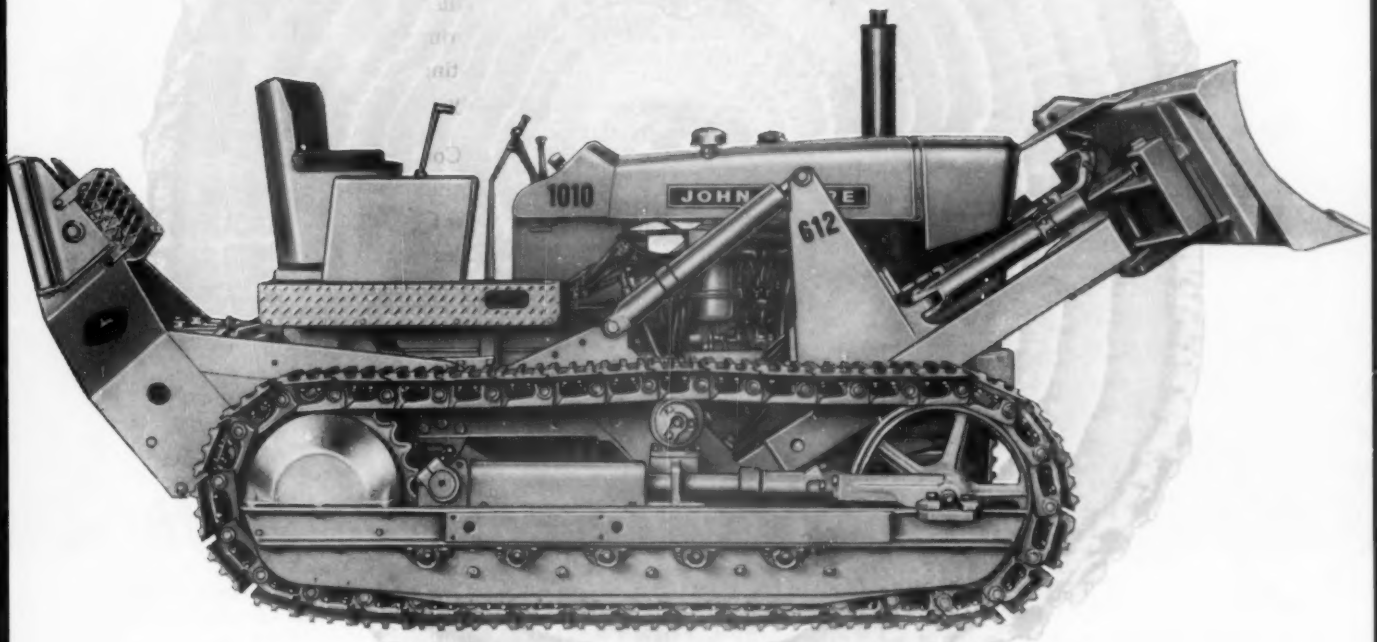

Newest in a long line of woods-wise John Deere Crawlers, the Ten-Ten is powered and equipped to break old production records, set new standards for skidding, pioneering, and work at the deck. Under the hood, there's an all-new John Deere-built 4-cylinder, 4-cycle gasoline or Diesel engine that develops 40 engine horsepower, operates efficiently through the whole throttle range. For fast handling at the deck, there's a new, optional wet-clutch and hydraulic direction reverser which eliminates shifting and clutching into reverse and forward. New all-hydraulic dozer operates with a single lever—exclusive T-bar control actuates cut, lift, angle and tilt in direct response to control position. Integral log arch preserves tractor maneuverability, increases skidding capacity, preserves haul roads, keeps logs cleaner. Free-spooling winch is hydraulically operated.

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OUTPUT— How do you figure it...

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WHAT would serious down time in the pulpwood yard cost you? Real money making output isn't produced by flash-in-the-pan operation. It isn't the result of hoist line speed, engine horsepower, or any other *one* thing. Money making output is the result of the perfect synchronization of smooth action, dependable power, and versatile ability through easy, accurate control, hour after hour and day after day.

Don't take our word for it. Ask Northwest owners. Find out why so many paper mills are Northwest users. Northwests stay on the job! They are always ready to go! We hear it everywhere and Northwest owners and operators will tell you so.

The easy, accurate control of the drum clutch through the Feather-Touch Clutch Control with its true "feel" of the load gives precision to spotting the grapple to the deck and greater safety to the crew. Big, cool running, uniform pressure Swing Clutches take the jerks and grabs out of swinging. Positive traction on both crawlers while turning, as well as when going straight ahead, negotiates narrow aisles without tearing up roadway.

There are many other Northwest advantages backed by Northwest ruggedness of construction which take output beyond mere hourly production.

Its ability to stay on the job has made one out of every three Northwests a repeat order.

A few of the well-known paper mills using Northwest Cranes and Truck Cranes:

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National Container Corporation
Kalamazoo Vegetable Parchment
Champion Paper Company
St. Regis Paper Company
Scott Paper Company
Marathon Mills
St. Joe Paper Company
Brown Paper Mill Company
Abitibi Power & Paper Company

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Pulpwood Outlook '61

Consumption will continue to grow, legislative problems more acute

Written exclusively for PULP & PAPER by W. S. Bromley, Executive Secretary American Pulpwood Association

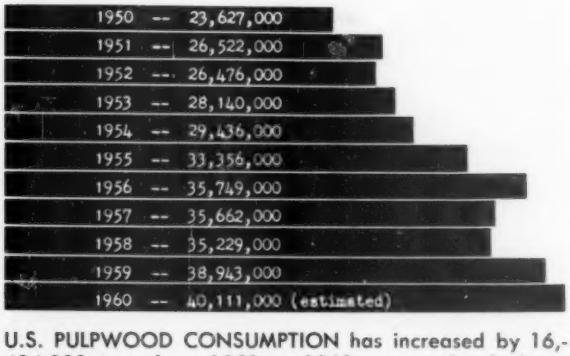
Frankly, in spite of some of the pessimistic reports on industry in general, I get the impression that pulpwood consumption may continue to increase slightly in 1961. There may be a slump in consumption the forepart of this year, but it should pick up in the latter part.

There are a few new mills coming on the market for pulpwood now, such as Tennessee River Pulp & Paper Co. This will undoubtedly be responsible for some increase and growth in consumption.

A very significant development in 1960 was the formation of the Southern Pulpwood Production Research Project of the American Pulpwood Assn. This is an outgrowth of interest of the pulp and paper mills in the Southeast, some of which previously sponsored a project for new methods of bark and chip separation. The new project being conducted by Battelle Memorial Institute, in stages, should extend over three years. The first year's project will make a detailed analysis of all aspects of pulpwood production, and effect of weather on pulpwood procurement in the Southeast.

This project is significant as it marks a trend showing new interest in research as a solution to industry-wide problems related to pulpwood.

A second important development is the accelerated use of wood chips in the South, with Northeast and Lake States paying more attention to this. Hand and hand with this development is the increased use of hardwoods species, which now account for approximately 21% of the industry's total pulpwood requirements. Chip use is about 16% of the total.



U.S. PULPWOOD CONSUMPTION has increased by 16,484,000 tons from 1950 to 1960; a growth of almost 70%. Industry for first time topped 40 million cord mark. This chart, prepared by PULP & PAPER, is based on U.S. Dept. of Commerce reports.

Pulpwood consumption in 1960 grew about 3-4% above 1959. This is a preliminary estimate and amounts to about 40,100,000 cords, the first time the industry may top 40 million cords.

Legislative problems will continue to plague the industry in 1961. The past year was a real threat from Congress in that we expected and got quite an attack on the 12-man and seasonal exemptions. We anticipate another and possibly more difficult legislative effort to eliminate these exemptions this year than we had in previous years. To counteract this the forest products industries need strong legislative support from all segments of these industries.

The entire industry is concerned with the significance and nature of some reported plans and programs being considered by the U.S. Forest Service in attempting to solve "problems of the small woodlands owners."

Another important type of legislation which will command the industry's attention will undoubtedly be bills dealing with Wilderness and recreational uses of forest lands in general. These may be dominant problems in 1961.

As in past years, the industry will have to meet these problems as it concentrates more actively on the growing problem of an expanding demand for wood to be produced by dwindling or inadequate labor forces and harvesting tools.

Woodyard of 1961

Continental Can combines design and automation; gets efficiency

Designed to process 600 to 700 cords/day of hardwoods and softwoods, Continental Can Co's. wood handling system uses only six men, a minimum of woodhandling and conveying.

The entire woodyard sits on an 8-in. thick concrete apron, 105-ft. wide and 800-ft. long, substantial enough for cranes to move over it without bogging down. This feature permits operation in all types of weather and also helps maintain an insect-free woodyard.

Three cranes are used in the woodyard. One is a track-mounted Lorain rake crane for unloading pulpwood cars into the flumes. Two 10,000 gpm pumps service the flumes which feed the jackladder to the two Fibre Making 67½-ft. by 12-ft. drum barkers. A Link-Belt grit collecting system is used.

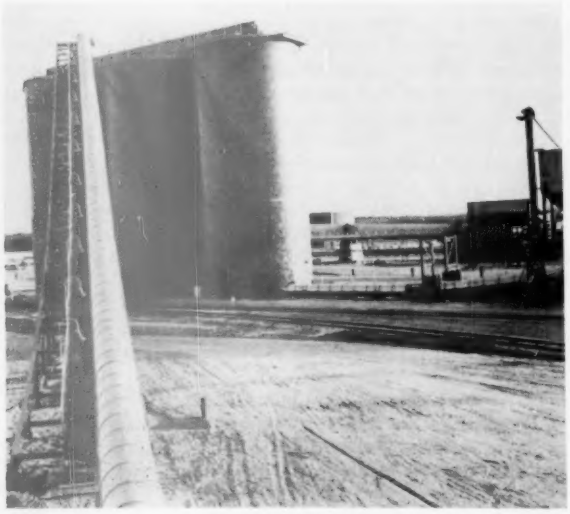
Barked logs are moved to the sorting room by a chain flight conveyor. A kicker roll assembly on the rooftop transfer conveyor moves the logs to the 6-ft. wide rubber belt sorting conveyor.

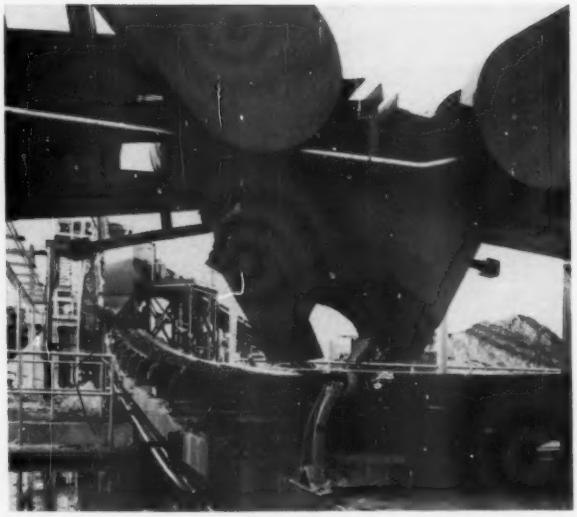
Alongside this sorting conveyor is the central Foxboro control panel. Here the operator has control of all wood operations from woodyard to chip silos. Oversize log or logs to be returned to the barkers can be removed from either side of the conveyor to a common hopper feeding a conveyor to the barking drums.

The chipper feed conveyor is 30-in. wide and so designed that no chipper man is needed. The Hansel 104-in., 12-knife chipper is the first such unit made by this company and Augusta mill operators credit it with producing good chips at an extremely fast rate with very little sawdust. This is evident by looking at the rejects from the three Rotex chip screens. The chipper

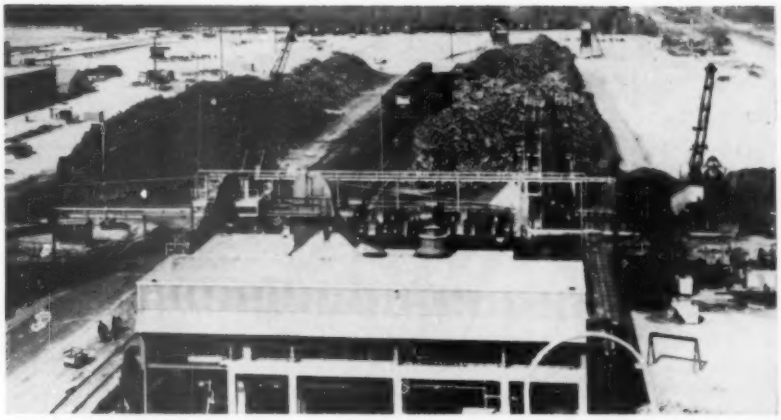
IN WOODYARD, crane rakes logs into flume (at right) which feeds jackladder (next right), which is hinged on bottom for easy maintenance. Hinged bottom can be picked up by crane to clean out flume. Sorting belt (far right) can be worked from either side. Panel controls all woodyard and woodhandling operations. Floor opening at right is for rejected logs which drop to common hopper for recirculating to drum barkers.

Chip silos (below) hold about 775 cords of chips. TV cameras in top of bins are monitored by operator in woodroom. Belt conveyor to silos has about 27° rise. Bark handling, designed for trouble-free operation, uses a no-transfer point bark handling system. Bark drops (below right) direct from drum barkers to conveyor feeding bark hog. Bark is blown (below, next right) through 30 ton/hour Rader pneumatic system to power plant. Flop gate (below, far right) on top of hog (upper left in picture) kicks out automatically when bark hog is too full and discharges bark through another chute onto ground storage.





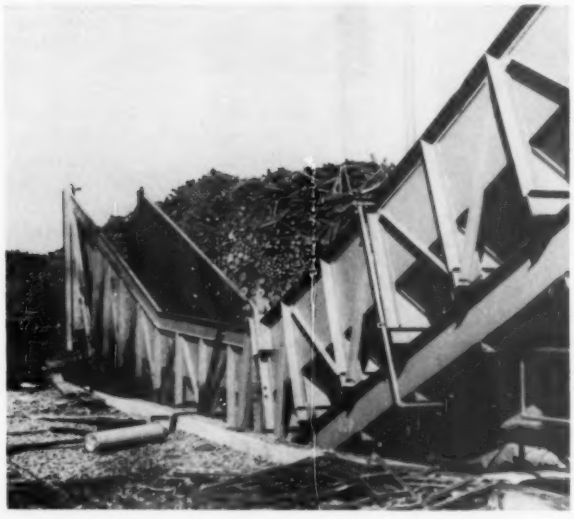
WOOD HANDLING AT AUGUSTA MILL is designed for hardwoods and softwoods and features a minimum of conveyors, new type of chipper, and central controls.

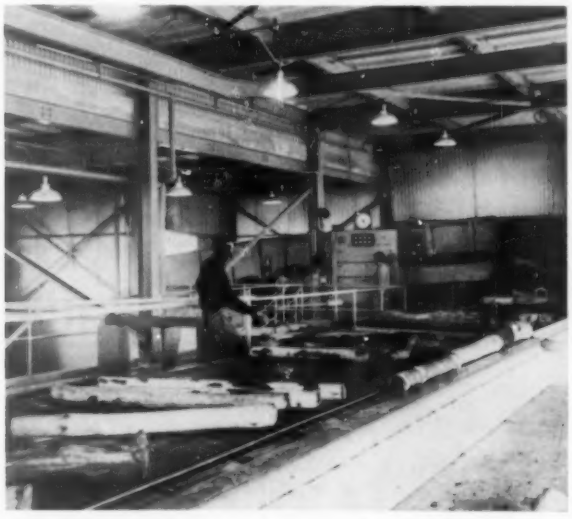


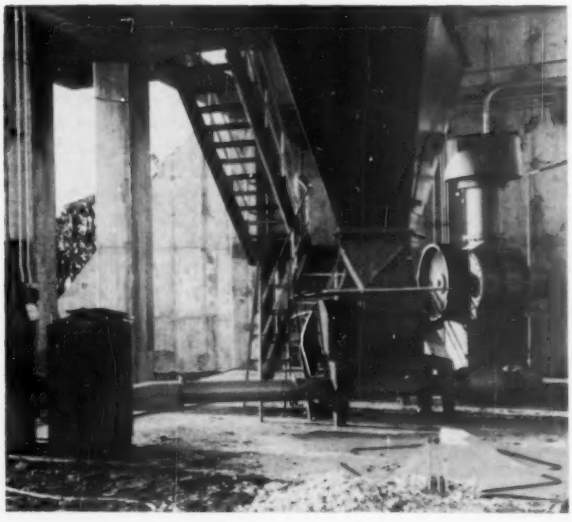
uses two knives; a regular knife and a channel knife.

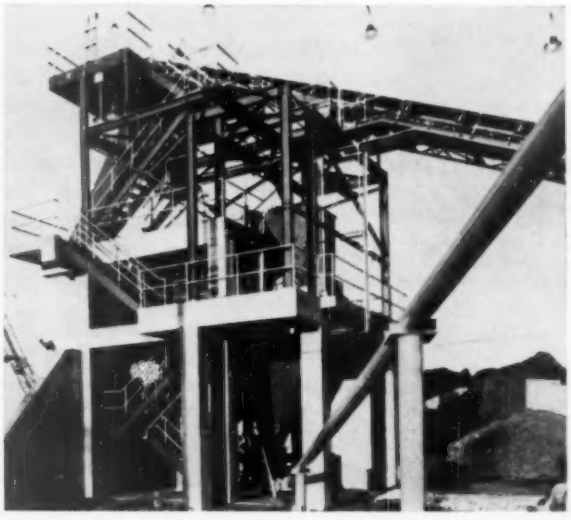
No reject chippers are used because of previous trouble with them. Accepted chips are conveyed on a 36-in. wide rubber belt conveyor up a 29° rise to the three Stebbins tiled chip silos, with total capacity of 775 cords of chips. Drag flight conveyors are used over the sides; rotary plate feeders draw chips from the silos for use in the pulp mill.

A special feature provides for easy maintenance of the jackladder. The bottom of the unit is hinged so that it can be picked up by a crane for ease in cleaning out the bottom of the flume. ■









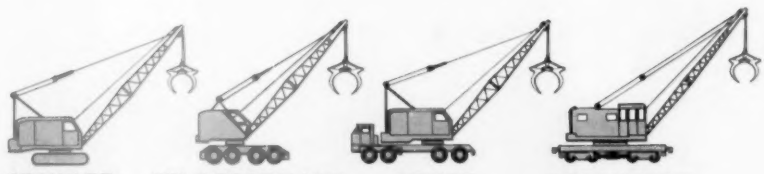
AMERICAN 395 crane loads pulpwood at cord-a-minute clip

That's not flash-in-the-pan production we're talking about, but *average* day-in day-out output for this AMERICAN crane. On truck-loading application shown, the AMERICAN 395 maintained a steady pace of 60 cords per hour . . . on other assignments handled up to 700 cords in a 10-hour shift.

AMERICAN's ground-hugging stability lets you pick up and spot loads over a large radius. Smooth-running anti-friction bearings are used on *all* constantly turning shafts, gears, and assemblies . . . even on brake linkage system for immediate response and close feel of the load. Clutches and brakes are larger and cooler-running than other cranes in its class. For more facts on safer, lower-cost-per-cord handling, see your AMERICAN distributor. CC-702-F

AMERICAN

AMERICAN HOIST and DERRICK COMPANY
ST. PAUL 7, MINNESOTA



Stimulate Interest in Ultrasonics for Wood Industries

This is a 40-page report published by Oregon Forest Research Center, Corvallis, Ore. to stimulate interest in ultrasonic energy in processing wood products. According to the author, Charles O. Morris, the report is the result of a study made of literature on the nature and applications of ultrasonic energy.

He says this is a highly versatile and valuable form of energy for many applications. Besides, there are potentially useful applications that have been neither studied nor developed. Potential applications in wood industries are listed as: impregnation, penetration, extraction, preparation of materials for study, dispersion of particles, fractionation of pulp, agglomeration, and polymerization.

The report states "many applications of ultrasonic energy have proved practical and valuable, and have taken their proper places in industrial processes, in research, and in testing." It points out four classes of application in industry and existing uses as follows:

Cavitation in liquid bath—cleaning, emulsifying, descaling, impregnating-dyeing-coating, homogenizing, extracting plant matter, soldering, degassing, defoaming.

Ultrasonic waves in gases—particle agglomeration, fog dispersing, drying.

Acceleration of abrasives in a slurry—machining drilling, deburring.

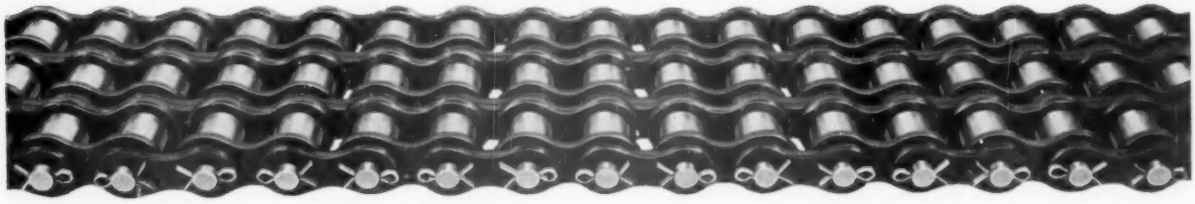
Application directly to solids—welding, testing.

Increasing Fire Research On West Coast

Forest fire research is to be accelerated at Pacific Northwest Forest & Range Experiment Station, Portland, Ore. This U.S. Forest Service unit recently created a division devoted especially to this program. Many changes in the Northwest have increased the importance of fire protection and the need for more intensive fire research, according to R. W. Cowlin, station director.

Constantly increasing timber values, more cutover land in various stages of second growth, logging in formerly inaccessible mountainous areas, continuing problems in handling logging slash and increasing public use of the forests pose difficult problems needing thorough study, states Mr. Cowlin.

David Bruce, engaged in forest fire research since 1939 except for military service, heads the division. He recently completed fou years at Southern Forest Experiment Station in charge of fire research.



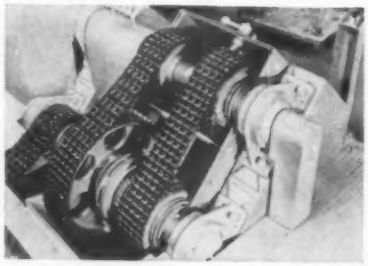
Here's
another of the
invisible extras that
insure the precision performance
of LINK-BELT roller chain

prestressing of multiple-strand chain guarantees

uniform load distribution

Unless each strand carries its full share of the load, multiple-strand roller chain may fail. That's why Link-Belt's prestressing is so vital. Prestressing seats and cold-works the chain joint parts . . . assures equal load distribution across the chain, reduced elongation in service.

Prestressing is just one of many *invisible extras* that contribute to the greater strength and endurance of Link-Belt roller chain. Others include precise heat-treat control, pitch-hole preparation, shot-peening and burnishing of rollers. These features—plus painstaking precision and inspection in every step of manufacture—assure you of chain that can easily cope with today's heavy loads and high speeds.



Quadruple-strand Link-Belt roller chain drives are used on this two-speed transmission. High speeds on short centers are easily handled.

For engineering assistance in applying industry's preferred roller chain, contact your nearest Link-Belt office or authorized stock-carrying distributor. Look under chains in the yellow pages of your local telephone directory.

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 15.556

LINK-BELT

ROLLER CHAINS AND SPROCKETS

Logs roll faster on rubber

The "PAYLOGGER" line gives you the exclusive combination of genuine Drott hydraulic grapples on rubber tire mounting — 4-wheel-drive units with the same mobility and proven performance as the well-known "PAYLOADER" tractor-shovels.

Built throughout for hard service, "PAYLOGGER" units feature powerful, reliable hydraulic systems of the closed, pressure-controlled type . . . better balance and stability due to low-and-close load-carry position. Power-transfer differentials, power-shift transmission, torque-converter drive, planetary axles, power-steer and 4-wheel power brakes are some of the important mechanical details that make "PAYLOGGER" units outstanding in tractive ability, ease of operation and dependability on any terrain.

Two sizes of "PAYLOGGER" units are available, with Operating Capacities of 12,000 and 17,000 lbs. Your Hough Distributor with his complete service and parts departments, backed up by factory service personnel is another "PAYLOGGER" advantage. See him today.

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THE FRANK G. HOUGH CO. 1-D-1
891 Sunnyside Ave., Libertyville, Ill.

Send more information on "PAYLOGGER" tractors with DROTT patented grapples to

Name.....

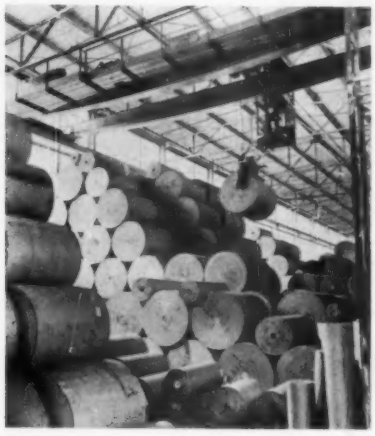
Title.....

Company.....

Street.....

City.....State.....

Problem: Erecting a crane in an old mill



Problem: Installing a five-ton crane with automatic paper roll grabber in a 1930 building which would not ordinarily support it.

Place: International Paper Co., Container Div., Somerville, Mass.

Solution: To speed up the first step operation in the corrugating, processing and fabrication of shipping containers, the crane had to be minimum weight to comply with building structure yet replace two existing two-ton units. Robert Abel & Co., Inc., Brookline, Mass., materials handling specialists worked with company engineers in designing the crane. Aluminum was considered but discarded in favor of steel box girders, all-welded and built of plate. For added safety, capacity was reduced to four tons and speed of the grab was increased. Two steps were taken to lower weight and increase effectiveness: Dynamic lowering brake was substituted for a mechanical load brake; dynamic lowering circuit was of dc type for precision. A special dc lowering circuit using newly developed silicon diodes was designed to avoid use of heavy motor generator. Total weight: 4 lbs.

Specifications: Span: 47 ft., 9 in.; Hoist speed: 48 fpm; Trolley speed: 150 fpm; Bridge speed: 300 fpm; Operating power: 550 volts, three phase, 60 cycle. Shepard-Niles built the crane, all controls are magnetic.

Problem: Person-to-person mill communication

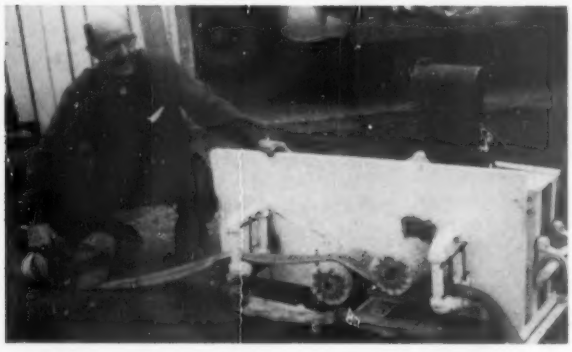
Problem: Attracting attention of key personnel when in inaccessible or noisy places.

Place: Crown Zellerbach's West Linn, Ore., mill.

Solution: Key personnel are contacted in seconds by pocket radio pagers operating through a telephone dial system. The 10 oz. Motorola "Handie Talkie" is no larger than a pack of king size cigarets, is used to attract safety supt., fire chief, electrician, instrument men, millwrights, etc. In all, 18 staff members carry them. Messages are transmitted by a clear, powerful non-varying FM radio, are free of static regardless of nearby electrical equipment. Two types of speakers are used, "hearing aids" like the one in the illustration, and lapel units in noisy areas.

Each unit is numbered and can be called from two different stations, one in the maintenance dept., the other at the watchman station. Response is by telephone or in person. Old-fashioned and annoying whistle system is now used only for fire alarms.

Problem: How to clean dirty hose



Problem: Cleaning linen hoses.

Place: St. Regis mill, Bucksport, Me.

Solution: Ed Remick, shown above, gets credit for this clever innovation designed to quickly and easily clean hoses. As supt. of the woodland's garage at St. Regis' Bucksport, Me., mill, Mr. Remick was frequently faced with dirty hoses, result of forest fire fighting and other normal usage. As one woodland's man puts it: "Junior's dungarees look clean after a mud battle compared to a linen hose after a fire fight."

The washer functions when the hose is drawn past two rapidly revolving brushes and a series of holes evenly spaced in a pipe which contains the water source. The brushes are revolved by a series of belts and pulleys which are in turn powered by a small, aircooled gasoline engine. Water is supplied by a Pacific pumper coupled by a hose to the pipe containing the holes.

The hose is drawn through by hand to obtain maximum cleaning. It passes under one side of the revolving brush and over the next to complete cleaning on all sides. Results to date give a much cleaner hose than those obtained by any other type of cleaning. A backboard separates the brushes from the drive and pulleys, protecting them from water.

Basic framework of the machine is scrap iron and backboard is ship's plywood. Waterproof paint can be used to prevent wood from rotting over long periods.

The idea for the washer was developed by Mr. Remick and the project was built by St. Regisman Charlie Soper.

SF Newsletter

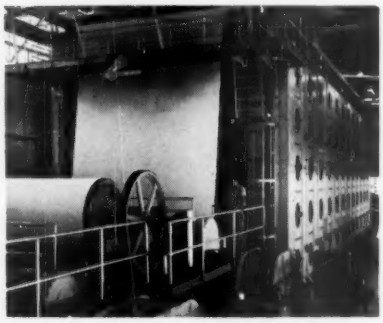
PULP, PEAS, PLAYTHINGS & YOUR PLANT

Picture of an SF engineer at work—well, almost. He's playing with a toy that bounces a ball on a stream of air. This preoccupation with air is natural for an SF engineer, because air is his business—air for ventilation, for temperature and humidity control, for heat recovery, and, principally—for drying.

Take the drying of delicate organic solids, such as grain, seeds or peas. SF *agricultural dryers* actually *float* the grains individually. They typify the SF axiom that "the more the drying depends on air, the better the drying will be."

Flakt® Dryer

The SF engineer's preoccupation with air finds its logical conclusion in the SF Type "L" *Flakt Dryer** for pulp. Here the pulp sheet is floated on a drying bed of air, which forwards the web without the use of mechanical conveyors. The simple air operation improves paper quality and cuts your plant's down-time for maintenance.



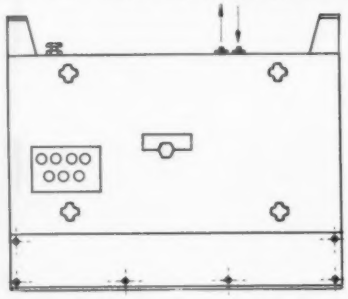
Heat Recovery

Other SF drying machines employ air to dry lumber, veneer, paper, textiles, sugar, coffee, bricks, and a hundred other materials. In conjunction with these processes, SF *Heat Recovery Units** provide further economies. They recover the heat of the damp exhaust air from the dryer and use it to heat the factory premises, or to provide hot water for the manufacturing process. We call SF Heat Recovery Units "money machines" because they provide so many opportunities to cut down on plant costs and overhead.

But air drying is only part of SF's air handling story; on the other side of the coin is SF's world-wide activity in ventilation and air conditioning for mines, hospitals, underground plants, schools—and for small laboratory experiments. Typical of the latter is the SF unit for constant humidity rooms.

Constant Humidity

SF's model *KDEB 10** is a compact, self-contained automatic unit for maintaining almost constant temperature and humidity for areas up to 2500 cubic feet. Compact in size (3 ft. 5 in. x 2 ft. 10 in. x 2 ft. 3 in.), this unit nevertheless provides a



complete facility for cooling, heating, humidifying, drying and filtering.

Send for Details

Would you like full information about SF air-handling equipment in the paper and pulp industry? From the Type L Flakt Dryer to the Constant Humidity Room, there is a range of products to help increase your plant yield at minimum operating expense. Please ask for Bulletin F (Flakt Dryer), L (Constant Humidity Unit) or R (Heat Recovery Units).

*Patented U.S. & Foreign

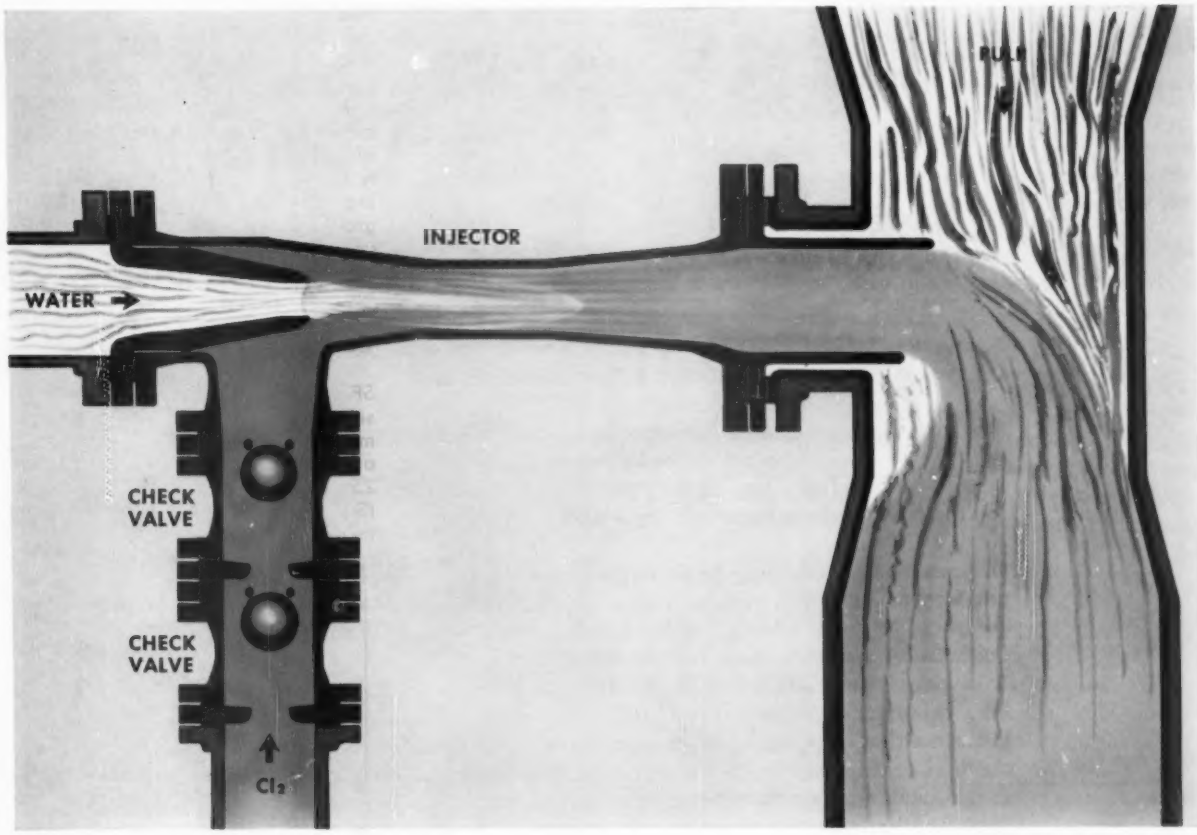
AMERICAN SF PRODUCTS, INC.

420 Lexington Avenue, New York, N. Y.

SF Products Canada Ltd., ☆ 940 Cote de Liesse Road, Montreal

ONE STEP TO BETTER PULP CHLORINATION

A TOUGH NEW CHLORINE INJECTOR



- **Engineered for chlorine**
- **Tough, corrosion resistant**
- **Effective chlorine atomization**
- **Dependable check valve**

Here is a rugged new injector, engineered specifically for safe, efficient chlorine injection into pulp stock.

Two types of construction are available: (1) steel body protected against corrosion and with a PVC insert; (2) a unit fabricated entirely of Hetron® polyester resin reinforced with glass fiber, tough materials, free from corrosion and fire-retardant.

The long, smooth venturi permits maximum use of water energy to atomize the chlorine for rapid, uniform solution in pulp slurries.

Dependable double check valves protect against a water backup into the chlorine system.

Hooker technical service engineers will be happy to help you design and install a complete system. They can also advise you on the other important steps of Hooker pipeline mixing, redox control, and retention time control.

Write for a descriptive bulletin on the new Hooker chlorine injector.

HOOKER CHEMICAL CORPORATION
1901 Forty-seventh Street, Niagara Falls, N. Y.

Sales Offices: Buffalo Chicago Detroit Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

HOOKER CHEMICALS PLASTICS

CLIFFORD A. NICHOLS
Executive Vice-President

TELEPHONE: TACOMA WAverly 2-8718

Huntington RUBBER MILLS, INC.

Mailing Address
BOX 6177, RIVERTON HEIGHTS
SEATTLE 88, WASHINGTON

January 1, 1961

Factory and Offices
344th AND PACIFIC HIGHWAY
BETWEEN SEATTLE AND TACOMA, WASH.

ANNOUNCING A NEW SERVICE FOR INDUSTRY

Huntington Rubber Mills has been appointed as the sole distributor of Ershig's Corrosion Resistant Reinforced Industrial Plastics.

The growing demand by commerce and industry for this product made it mandatory that we include reinforced plastics in our line. After an exhaustive search we concluded that Ershig could produce and fabricate the best product for the host of applications we encounter.

Our reasons for deciding on Ershig's are complex. First, they are a well established firm with over 40 years' experience in the field of industrial and commercial metal fabrication for heating, ventilating and refrigeration installations. Second, their Reinforced Industrial Plastics Division has spent five years laboriously perfecting a specific product through expert engineering, research development and quality control. Third, Ershig's has entered into a continuing program of product advancement necessary to assure our customers that only up-to-the-minute methods and materials will be combined in the manufacture of a superior product, designed and formulated to the specific requirements of each application.

We are enthusiastically compiling research and engineering data for publication in a soon-to-be-released catalog of Ershig's reinforced plastic products. A copy of this worth-while publication will be available soon. In the meantime, we cordially invite your inquiries about Huntington products that can best serve your needs.

Sincerely yours,

Cliff Nichols

Executive Vice President
and Manager

HRM

Associate Plants:
PORT COQUITLAM, B.C.
PORTLAND, ORE.

meet the newest member of our family*

FRP

This light weight, durable material can be fabricated to exacting specifications for trouble free operation in an extremely corrosive environment.

FRP is ideally suited to uses such as Ventilating Heads, Ducts, Pipes, Fume Scrubbers, Flumes, Stacks, Tank linings and Structural shapes.

THERE IS NO SUBSTITUTE FOR EXPERIENCE and Huntington Rubber Mills' 47 years experience in the manufacture and sales of industrial rubber products coupled with Ershig's 40 years experience in the field of corrosive resistant materials for industry is a reassuring guarantee that FRP installations will perform efficiently.

ERSHIG'S

Industrial Plastics Division

Manufacturers and Fabricators of FIBER REINFORCED PLASTIC

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PORT COQUITLAM, BRITISH COLUMBIA

ERSHIG'S.... BELLINGHAM, WASHINGTON

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Factory and offices: 344th and Pacific Highway, Seattle, Washington
Mailing address: Box 6177, Riverton Heights, Seattle 88, Washington
Telephone TACOMA WAverly 2-8718

Huntington RUBBER MILLS
Factory and offices: 7100 S.W. Macadam Ave., Portland 19
Mailing address: P.O. Box 570, Portland 7, Oregon
Telephone CHerry 6-5411

HRM

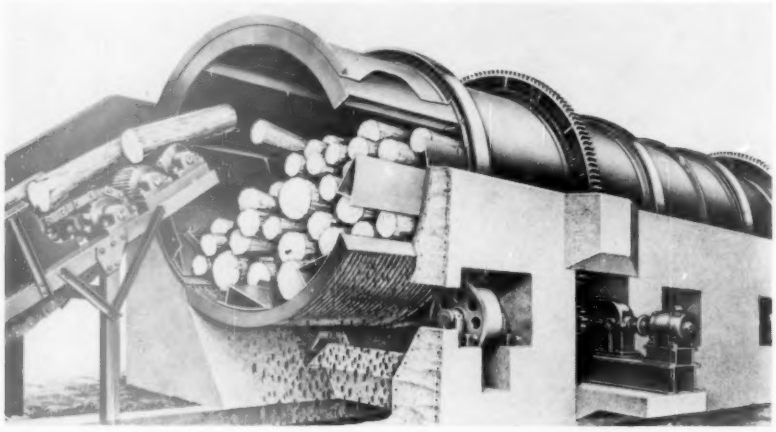
Huntington RUBBER MILLS

Craftsmen in Industrial Rubber for 47 Years

**Sole distributor of* ERSHIG'S *corrosive resistant fiber reinforced plastics for industry.*

NEW EQUIPMENT

D. J. Murray to market tunnel barker

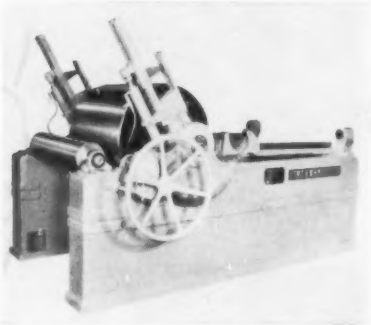


D. J. Murray Mfg. Co., Wausau, Wis., has been granted sole sales and manufacturing rights for newly developed Schnyder tunnel barker. Unit was developed by A. T. Schnyder, consulting engineer for Lummus Co., subsidiary of Combustion Engineering Inc. Rights were granted by C.E.

Barker represents new concept in bark removal, utilizing working parts of conventional trunion barking drum, with this exception: Revolving drum is replaced with an "open" scroll sweeping the circular tunnel that supports the logs. Barking action is principally by friction and impact against concrete tunnel wall. Barker designed for commercial size pulpwood ranging from 4 to 10 ft. length and from 4 to 24 in. in dia. Unit is 12 ft. in dia. by 48 or 72 ft. in length, depending on number of scroll sections, latter each being 24 ft. long.

Horizontal reel

. . . compact, easy to operate



Applications: For machines of up to 100-in. trim, operating at speeds of up to 1000 fpm, with operating roll diameters of 48, 60 and 72 in.

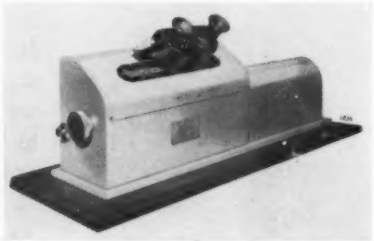
Advantages: Surfastart 1000 features primary arm loading, synchronized and retractable secondary slides and anti-friction bearings. Engaging blocks support the spool and permit smooth engagement of spool to drum.

Specifications: Full line of accessories is available, including motorized primary arms, spreader bar, center wind attachment, core winding and slitting attachment.

Supplier: **Black-Clawson Co. (Dilts div.), Fulton, N. Y.**

Web viewer

. . . permits web inspection

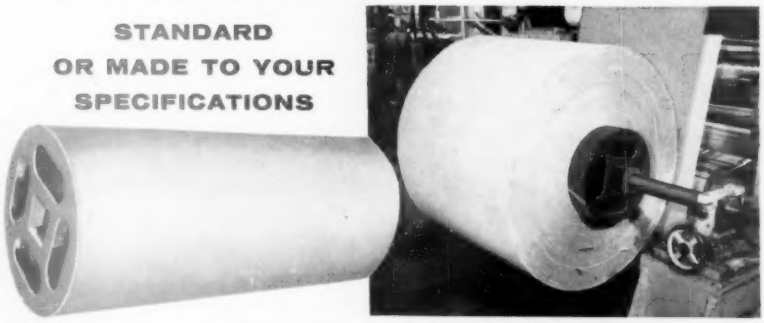


Applications: To visually "stop" and permit inspection of moving web while machine operates at normal production speeds.

Advantages: Precision optical device permits close-up of full-width exami-

For True Winding and Unwinding
use Overly's
CONCENTRI-CORES

STANDARD OR MADE TO YOUR SPECIFICATIONS



The permanent winding core for paper mills, converters and printers featuring

- **Permanent welded construction**
- **Heavy gauge steel center tube**
- **3/16-inch steel end-plates and flanges**
- **1/4-inch hard vulcanized fibre shell**
- **Easy chucking arrangement**
- **Core of standard or special diameter**

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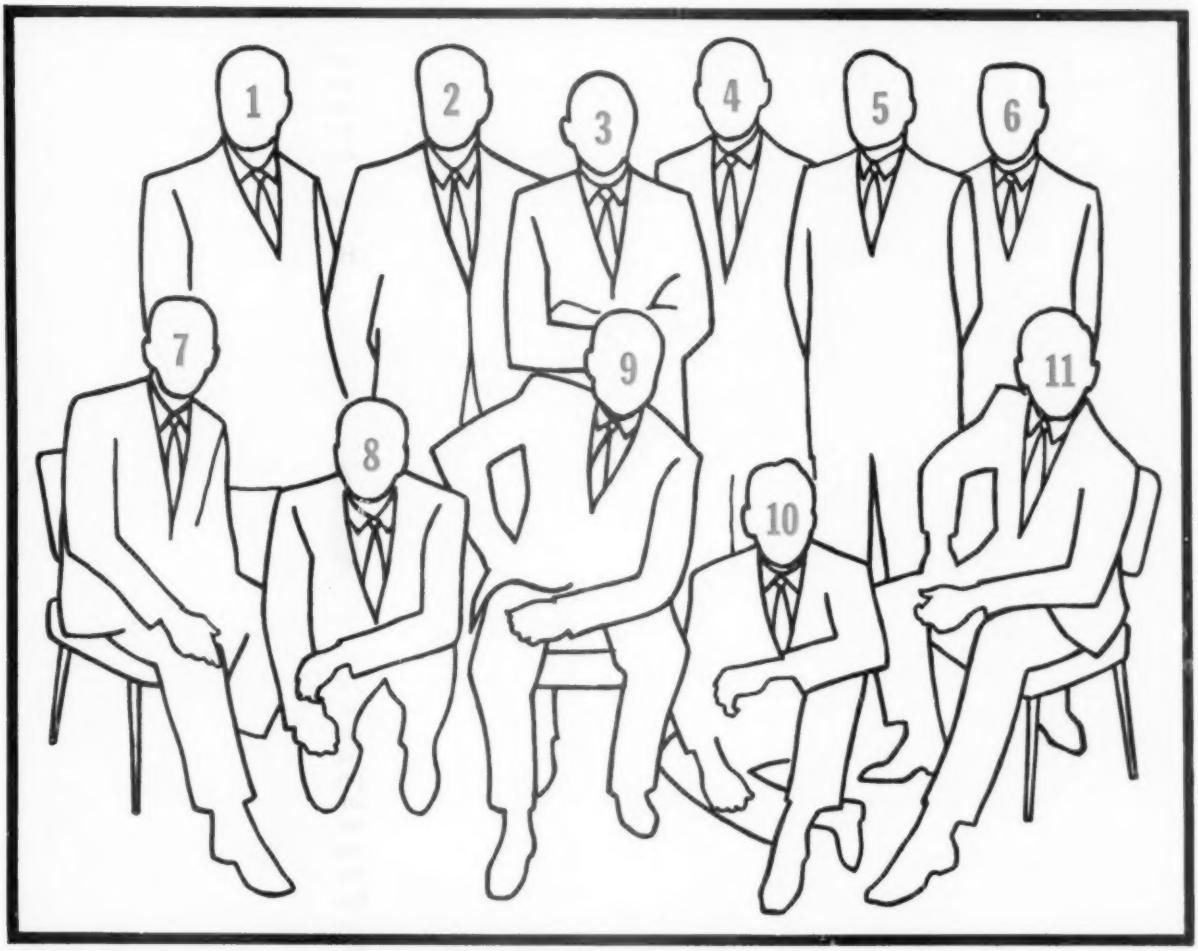
Serving the paper industry in custom metal fabrication of engineered air systems — machine hoods — Gardner Dryers—Westinghouse Sturdevant fans and steam coils — stock pipe — distributor rolls — suction boxes — white-water pans — head boxes — tanks.

OVERLY'S INCORPORATED
Box 468 Neenah Wisconsin

ALLIS-CHALMERS

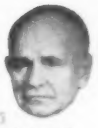
A-1319



Group photo of 11 Allis-Chalmers paper industry specialists

too busy to pose

... but that's the way we work at Allis-Chalmers. Attention to customer service makes it hard to get these 11 specialists together for picture taking. Emphasis on giving prompt, practical solutions to the mechanical and electrical problems of our customers has given us a breadth of experience that no other manufacturer can offer! Whether you are looking for information on a single piece of equipment or on a complete process, contact your A-C representative or write the Industrial Systems Dept., **Allis-Chalmers,** Milwaukee 1, Wis.



1 **F. R. Forrest** Consulting Engineer

2 **H. K. Kingsbury** General Mill Pumps

3 **L. C. Vogel** Paper Stock Pumps

4 **H. A. Wright** Electrical Controls

5 **J. F. Fenske** AC Motor Applications

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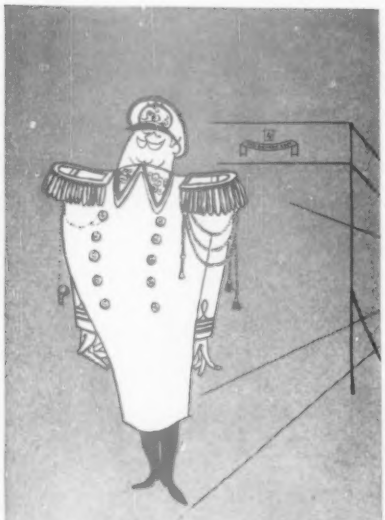


Pompous?

OH, NO SIR! PROUD!
Proud to be associated with New York's new, elegant Dryden-East. The decor is discreetly lavish. Rooms are extraordinarily large, luxuriously appointed.

Naturally, every room has individually controlled air conditioning, color television, FM radio, extension phone in bathroom, its own private cocktail bar. And may I venture to say, sir, the personalized service is unparalleled.

Welcome, sir—and madame—to

New
DRYDEN-EAST
Hotel
49th Street, just East of Lexington Ave., New York 16

Tariff from $15 to $60 daily.

Several executive suites suitable for large companies as a year round city apartment.

Robert Sarason, *General Manager*

NEW EQUIPMENT . . .

nation of materials without interrupting production schedules. Although unit viewer seems to stop moving materials, illusion is created by oscillating mirror system. As material passes viewer, mirror system—automatically synchronized to speed of the range—scans a given range, causing it to appear stationary. As each section passes from observer's sight, mirror system returns to beginning of stroke and picks up visually the next section to be examined.

Specifications: Web viewer may be adjusted to examine patterns of various repeat lengths. Device permits careful inspection of colors, structure or register. With mirror system operating at 400 cycles per min., speeds at which material may be viewed are determined by multiplying repeat length by 400. Materials running at speeds of up to 1500 fpm can be examined in 45-in. sections. Retractable 4× binocular permits closer inspection of any local area within the section.

Supplier: **Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass., U. S. A., Tel: VAndyke 4-6994.**

Submersible ac motors
. . . impervious to corrosion

Applications: For close-coupling to centrifugal pumps operating in any depth of water, oil or chemicals.

Advantages: Heavy one-piece ribbed housing is leak-proof. Both motor frame and mounting base are impervious to corrosion. Units are oil-filled to give total protection against bearing wear, never need additional lubrication. If internal and external pressures differ due to heat or depth of immersion, diaphragm flexes slightly to neutralize pressure. Motor base precision-machined for true shaft concentricity. Impeller mounts directly on motor shaft; motor shaft serves as pump shaft. Pump-and-motor assembly can be lowered into position as a single compact unit.

Specifications: Available in sizes from ½ through 40 hp for operation from polyphase power sources, from ¾ through 5 hp for single-phase connection. New motors rated at 55°C temperature rise for 30-min. duty in 40°C liquids. Reconnectable dual-voltage feature available on single-phase units from ¾ through 2 hp and on all polyphase motors. Single-phase control panels available to meet specific requirements. Basic control consists of necessary capacitors and voltage relay. Locked rotor protection and overload protection may be added. Optional control feature is thermal protectors imbedded in motor winding so as to prevent failure if operated nonsubmerged for extended periods.

Supplier: **Reliance Electric Engineering Co. (J. E. Stratton, Product Information dept.), 24701 Euclid Ave., Cleveland 17, Ohio, Tel: REdwood 2-7000.**

Conveyor idler sleeve
. . . improves cleaning action

Applications: To improve cleaning action on belts during return flights.

Advantages: New idler sleeves, using two treads rather than the single tread used on conventional units, flex belt evenly as it passes over idler rollers. Flexing action separates caked accumulation from belt surface, causes it to flake off belt. Sta-Kleen Dubl-Tread sleeve flexes belt surface into twice as many sections as single tread.

Specifications: Sleeves are fabricated of two-ply duck foundation with treads built up to ⅛-, ¾- or 1-in. wall thickness. They are built to diameter of idler roll to provide for easier application, longer life. Each sleeve has channel between the two threads to receive a band that anchors sleeve to idler.

Supplier: **Goodyear Tire Rubber Co., 1144 East Market St., Akron 16, Ohio, Tel: FRanklin 6-1411 (Ext. 2363); Goodyear International Corp., Akron, Ohio.**

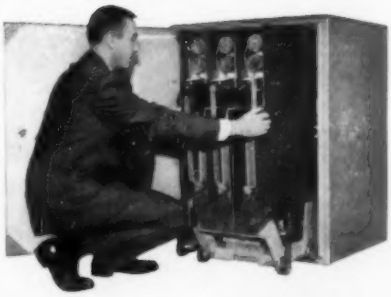
ALLIS-CHALMERS

New *SpaceMaker* control is the first completely new high-voltage motor controller in more than a decade. It is the first two-high, 2 to 5 kv control center, and the first in its voltage class with complete drawout construction for unprecedented safety and accessibility.

Inspection and maintenance are greatly simplified. One man can easily roll the carriage from the control enclosure for complete accessibility. Arc chutes and barriers lift out and the pole pieces rotate to expose the contact structure.

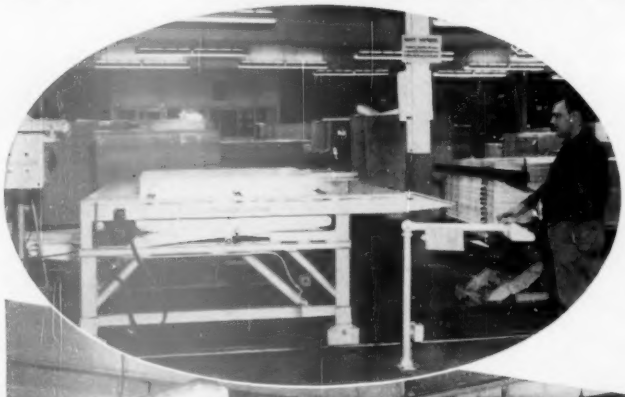
And, SpaceMaker control is completely safe. It is impossible to come in contact with "live" parts because the contactor is connected and disconnected with the door closed and live line connections are isolated by automatic shutters.

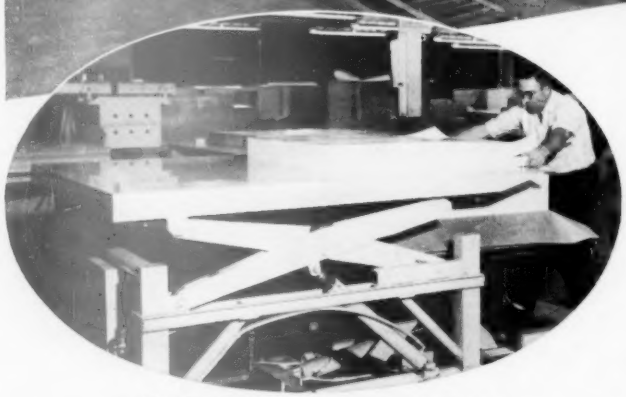
For complete details of the new, years-ahead SpaceMaker *controller, call your nearby A-C representative. Or write* **Allis-Chalmers,** *Industrial Equipment Division, Milwaukee 1, Wisconsin.* A-1406



SpaceMaker is an Allis-Chalmers trademark.

HOW SOUTHWORTH STRADDLE TABLES* *increased production* AT CONSOLIDATED





Photos Courtesy Consolidated Water Power & Paper Co

The highly mechanized layout illustrated actually increased trimmer output by 150% . . . for by its simplification the feeding of untrimmed paper and the piling of trimmed paper were expedited, enabling the trimmer to operate nearer to capacity.

This is another typical example of how a Southworth installation aids in cost reduction by a better use of existing facilities, by minimizing waste through better handling and by the improvement of safety conditions for the workers.

FOR DETAILS WRITE: SOUTHWORTH MACHINE CO., 281 WARREN AVE., PORTLAND, ME.

SOUTHWORTH SYSTEMS

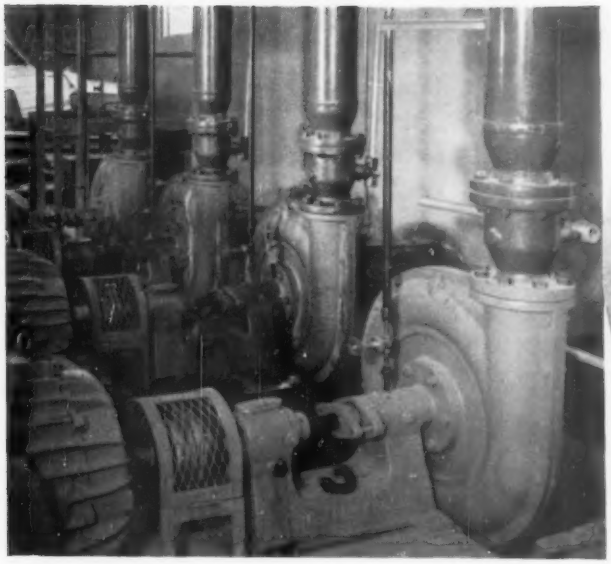
Paper Conditioners; Automatic Carton Sealer; Lift Tables; Air-Lift Tables; Cutters; Deliveries; Layboys; Skid Turners; Hand, Foot, Motor Driven Punching Machines; Humidifiers; Envelope Presses; Punch Heads; Tabbing Knives; Corner Cutters; Custom Built Allied Equipment.

*Lift Table Patents Pending

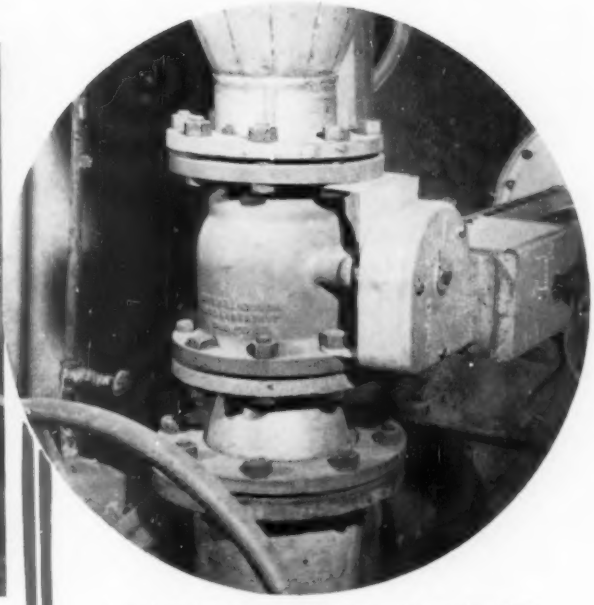
jamesbury

"Double-Seal"™ BALL VALVES*

Most VERSATILE Valve In The Mill!



Jamesbury installation at Mead Corporation Chillicothe Plant



Jamesbury installation at Weyerhaeuser Longview Plant

As varied as the valving requirements are in pulp and paper processing, the Jamesbury "Double-Seal" Ball Valve is meeting them successfully. Jamesbury offers a functional, efficient, economical Ball Valve which has proved itself in performance in many major installations such as the examples shown above.

Jamesbury Ball Valve Versatility Is Proving Itself In These and Other Services

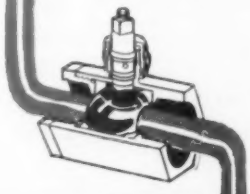
Spent Acid Lines • Sodium Dioxide • Calcium Hypochlorite CO_2 • Sampling Lines • Stock Lines • Bleach Lines • Liquor Lines H_2SO_4 • Black Liquor Recovery Service • Kraft Mill Digester Service • Chlorinated Stock Service • Brown Water SO_2 Service Instrumentation Lines • White Water • Water & Pulp Grinder Water in Filtration Plant • Digester Gas-Off • Digester Blow Service • Vacuum Service • Power Boiler • Gas Service General Caustic Service • Alum Lines • White Liquor Fill Vertrap Drain • General Air Service • Kaolin Clay Service • Paper Filler Service • Glue & Paste Service • Pilot Laboratory • Demineralizer Coating • Color Rooms • Paper Machine Showers • Hydrogen Peroxide • Rapid Cycle Digester Service • Hydrogen Gas Service • Boiler Water Treatment System • Ash Elimination Dry Chlorine Service • Starch System. * Patented

GREATEST RANGE OF BALL VALVE SIZES AND MATERIALS AVAILABLE.

Jamesbury "Double-Seal" Ball Valves are available in Types 303, 316 and Alloy 20 Stainless Steels, Carbon Steel, Bronze, Ductile Iron, Aluminum and PVC. Other materials on special order.

Interchangeable seats and seals are available in "Teflon", Nylon, Buna-N, Neoprene, Hypalon and natural rubbers.

Pneumatic, Hydraulic and Electric Motor Operators to fit Remote Control Requirements.



SIZES

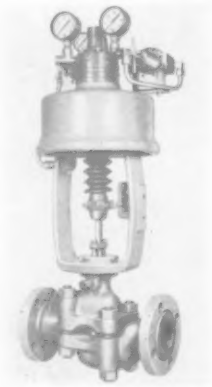
Screwed End	¼" through 3"
Flanged	½" through 10" 150# and 300# series

Send for Jamesbury's Pulp and Paper Brochure.

JAMESBURY CORP. NEW STREET, WORCESTER, MASS.
Distributors in Principal Cities

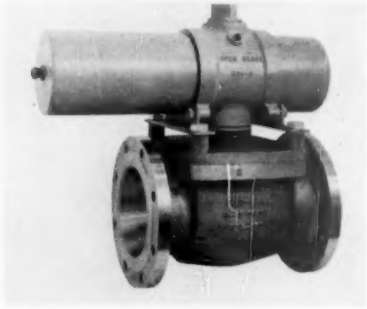
NEW EQUIPMENT . . .

Split-body valves
. . . are interchangeable



Applications: For free passage of even highly viscous fluids.
Advantages: New valve and cylinder actuator make possible an intermix of diaphragm and cylinder actuators with split bodies and globe bodies to match specific applications.
Specifications: Split-body valve is available in straight-through, angle and corner types with fixed or separable flange construction. Other features: clamp-in seat ring, metal or Teflon guiding, non-lubricated V-ring packing and contoured equal-percentage, linear or quick-opening plugs.
Supplier: **Minneapolis-Honeywell Regulator Co. (Valve div.), Fort Washington, Pa.**

Flo-ball valve
. . . with spring return



Applications: For control of process liquids.
Advantages: Unit is top-loading for easy access to internal assembly without removal from line. It has a top and bottom guided ball and a floating seat; also, the standard zero leakage, low torque, quarter-turn actuation.
Specifications: Rated at 150 lb. ASA, unit is equipped with close-coupled, compact, air-operated actuator with a manual override. Designated as Model 731 V, it can be ordered normally open or normally closed. Materials of construction are either carbon or stainless steel.
Supplier: **Hydromatics Inc., 5 Lawrence St., Bloomfield, N. J., Tel: WYman 2-4900.**

Motion safety switch
. . . "almost foolproof"

Applications: To protect machines, equipment and processes against damage resulting from stoppages. Especially useful for stopping a machine serving another, switch may be used to control a motor circuit or to operate a warning device.
Advantages: Says the manufacturer, the easily-installed unit is "almost foolproof and requires little attention." Unit limits repairs to those necessary to correct original cause of stoppage.
Specifications: Switch is 9¼ in. high, 9½ in. wide and can be driven in either direction at 40 to 100 rpm.
Supplier: **Fuller Co., 120 Ridge St., Catasauqua, Pa., Tel: COngress 4-2841.**

HANSEL CHIPPERS

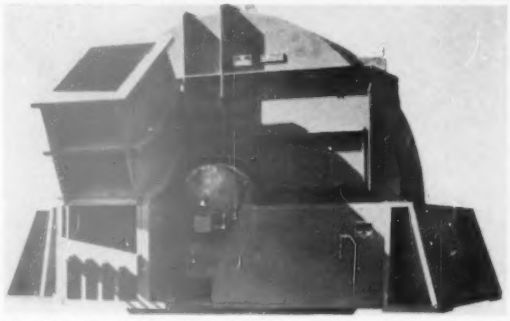


Illustration shows the 104" 12-knife chipper recently installed at Continental Can Company, Augusta, Georgia

Hansel Manufacturing Company, Inc.
Designers and Manufacturers of Chippers From 36" to 180" Disc Diameter

Typical recent installations:

USA	104" 12-knife—drop feed—belt drive 800 HP—60 cords per hour—short wood
Canada	112" 9-knife—horizontal feed—direct drive Tree length logs up to 24" diameter.
Norway	Two 112" 10-knife—horizontal feed—direct drive. 2000 HP Multi-feed medium length logs.
Germany	84" 8-knife—horizontal feed—belt drive 450 HP Short small logs and bundled wastewood.
Canada	154" 6-knife—horizontal feed—direct drive 1500 HP Tree length logs up to 36" diameter.
Austria	84" 8-knife—small pulp logs

Over 300 other chippers built in the last 5 years. Also Hansel Re-chipper.

CHIPPER NEWS

Chippers are much in the news. One of the most up-to-date woodrooms for chipping small pulpwood logs is at Sarpsborg, Norway mill of Borregaard. Logs come from the water or alternately from trucks by land direct onto a belt conveyor which takes them at a speed of nearly 300 feet per minute to each of the two 112" 10-knife horizontal feed Hansel chippers. These have overhead discharge which blows the chips into cyclones from where they are distributed to the screens. Due to patented knife setting, logs are pulled into the chipper with a strong positive action, and the chips are of exceptionally uniform quality. An average of 7 logs at a time proceed constantly through each chipper. It is not considered necessary to have a man at the chipper as jamming in the spout is rare with a horizontal feed.

CHIPPER DRIVES

Chipper drives are becoming an increasingly important factor. As a result of Hansel engineers' discussions with technicians of motor manufacturers in the U.S.A. and Europe, motors and drive calculations have been arrived at which should prolong motor life and give continuous satisfactory chipper operation. The drop feed 104" 10-knife Hansel chipper at Continental Can is belt driven from an 800 horsepower motor with a special type belt developed in Europe, and is the longest Extremultus drive in North America. This chipper is in production at a rate of 60 cords of small pulpwood per hour.

HORIZONTAL FEED CHIPPERS

The Hansel Manufacturing Company, pioneers of the horizontal feed chipper, have made over 300 of these machines in sizes up to 154" diameter. This is the largest horizontal feed chipper to date. It takes logs of tree length up to 36" in diameter fed horizontally into the chipper after passing through a Hansel hydraulic ring barker. Alongside this chipper is a Hansel horizontal feed 112" 9-knife chipper which takes logs up to 26" in diameter after passing through a high speed ring barker.

Inquiries Invited

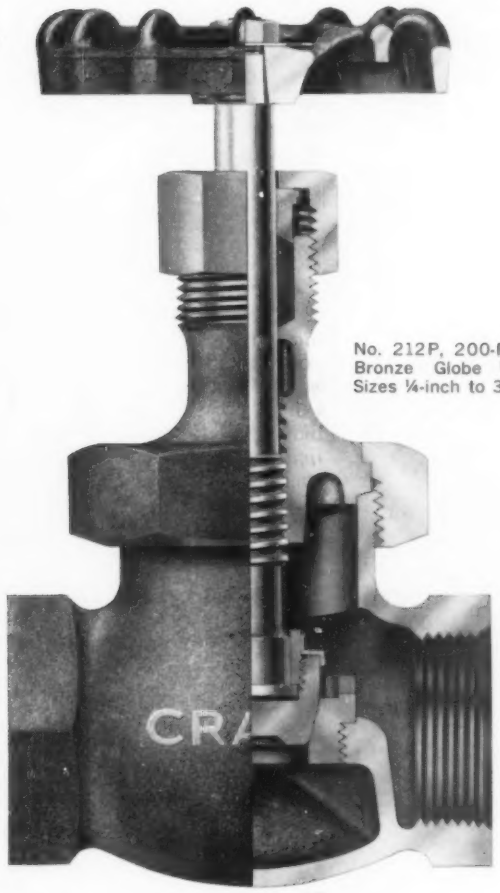
HANSEL MANUFACTURING CO., INC.

P. O. Box 357
Lynnwood, Washington

1089 West Broadway
Vancouver 9, B. C.

Best choice for throttling service...

CRANE PLUG DISC BRONZE GLOBES



No. 212P, 200-Pound Bronze Globe Valve. Sizes ¼-inch to 3-inch.

These rugged valves are made for the toughest throttling jobs! Use them anywhere . . . on blow-off, boiler feed, soot blower, and drip and drain lines . . . then sit back and forget your maintenance worries.

Crane's "500 Brinell" stainless steel disc and seat give superior protection against corrosion and wear. The wide seating surface resists wiredrawing and damage from foreign matter. Deep stuffing box is filled with high grade packing.

Crane Plug Disc Bronze Globe Valves are made in 150-Pound, 200-Pound, and 300-Pound pressure classes, in a full range of sizes. Your Crane Distributor can ship your requirements from stock.

Crane Plug Disc Bronze Valves are also available in angle pattern

New! Write for your personal copy of Crane's Catalog 60. In it you'll find complete specifications on Crane's full line of bronze valves, and valves for every fluid handling service.

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CRANE CO., INDUSTRIAL PRODUCTS GROUP
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VALVES • ELECTRONIC CONTROLS • PIPING • PLUMBING • HEATING • AIR CONDITIONING

Frequent Meetings

of the LINDSAY TECHNICAL SERVICES STAFF and SALES REPRESENTATIVES

REACH CONCLUSIONS of VALUE to PAPER MANUFACTURERS

Left to right—Hugh Quinn and Cass Cook, Technical Services; Keith Forbes (standing) and George Wennes, Sales Representatives.

Lindsay sales representatives have frequent occasion to meet with members of the Lindsay Technical Services Division in Cleveland. *Purpose:* to discuss real conditions and find practical answers to problems which arise in the plants of paper manufacturers.

THE Lindsay WIRE WEAVING COMPANY

14001 Aspinwall Avenue • Cleveland 10, Ohio

"Quality Fourdrinier Wires Since 1904"

UNITANE®

OR-540

Titanium Dioxide

FOR QUICK DISPERSION

The uniformly fine particles of OR-540 wet quickly and disperse easily, evenly . . . give your paper coatings the utmost in opacity, whiteness and finish. Ask your Cyanamid Pigments representative for complete information.

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Branch Offices and Warehouses in Principal Cities

STRICTLY PERSONAL . . .

starts on p. 29 . . . mgr. of personnel, office services for New York office. . . . Harry L. Hildebrand is manager of process and design engineering and **John G. Musselman Jr.**, mgr., of fabricating division, Taylor Fibre Co.—Maurice R. Castagne.

Midwest

Marathon Promotes Three at Green Bay Division

Creation of the new post of asst. mgr. of the Northern Products div. and three resulting production management promotions were reported recently by **Vice Pres. Milan Boex**, who heads northern operations of the Marathon div., American Can Co. **John E. Goode**, formerly division production mgr. and mgr. of the Green Bay, Wis. plant, is named asst. Northern div. mgr. His successor as production mgr. is **Larry S. Sabatke**, who has been mgr. of the Marathon plant in Menominee, Mich.

Succeeding Mr. Goode as Green Bay plant mgr. is **James E. Tippet**, formerly asst. plant mgr. New Menominee plant mgr. is **Martti Lundstrom**, who previously held the post of plant engineer.

I. J. Safford, former vice pres. and director of Neenah Paper Co., Neenah, Wis., died recently after a short illness. . . . **F. O. (Fritz) Kanehl**, vice pres. and treas. of the former Ohio Boxboard Co., retires January 31 as a financial executive of Packaging Corp. of America. He also retires as vice pres. and treas. of Ohio Injector Co., Wadsworth, Ohio. . . .

Jack Gilman, mfg. vice pres., Allied Paper Corp., is in charge of manufacturing functions of five mill divisions in Kalamazoo, Mich., and also responsible for Engineering and Production Scheduling depts.

J. C. Mulholland, 25-year veteran in paper and paperboard, takes charge of sales for Paperboard div., Packaging Corp. of America. Mr. Mulholland is vice pres./sales, headquartered in Evanston, Ill.

Appleton Wire Works, Appleton, Wis., reports six executive appointments: **Harry Kositzke** is promoted from works mgr. to vice pres. of manufacturing; **Bruce Purdy** from secretary and director of engineering to engineering vice pres. and secretary; **C. A. Pertain** from treas. to financial vice pres. and treas.; **Donald Strutz** from asst. to the works mgr. to director of field service; **James Farnsway** from mgr. of production planning to asst. to the director of sales, and **Charles Buchanan**, asst. to plant mgr. . . .

H. M. Hughson is named to the new position of production mgr. of pulp and paper at the Biron (Wis.) div. of Consolidated Water Power & Paper Co. He has headed the Biron Technical dept. since 1959. In another CWP&P appointment **William P. Orcutt** becomes technical supervisor at the Wisconsin Rapids div. He was formerly project engineer on the research and development staff. . . .

William M. Stephenson has joined the Papermaking Chemicals dept. of Nalco Chemical Co. as staff engineer. A graduate of the Institute of Paper Chemistry, he was at one time a chemist with St. Regis Paper Co., Pensacola, Fla. . . . **Barry Emerson Berry**, formerly associated with Miller Brewing Co., joins Fischer & Porter Co. as field . . . **turn to p. 86**

Chemical Pulping Processes

Chemipulp and Chemipulp-KC systems help achieve maximum production of uniform, high quality pulp at lower cost and provide means for efficient recovery of heat and chemicals.

- Hot Acid Systems
- Independent Recovery Systems
- Recovery Towers
- Digester Circulating Systems
- Chip Distributors
- Jet-Type Sulphur Burners
- Spray-Type SO_2 Gas Cooling Systems
- Sulphite Acid Systems
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MODEL AK AUTOMATIC

FOR CHIPPER—HOG—PAPER—VENEER KNIVES—ROTARY CUTTERS—DOCTOR BLADES—SHEAR BLADES, ETC

EXTRA HEAVY DUTY Traveling Wheel Type
Capacity—84" to 396"
Motors—7½ to 40 HP
Speeds—10' to 100' and faster
TRANSMISSION DRIVES
Mechanical—Constant Speed
Hydraulic—Variable Speeds
WHEELS
Cylinder or Segmental Types
16 — 20 — 24" Diameter

1. Guaranteed Construction
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3. Advanced Design
4. Quiet, Smooth Running and Entirely
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REAL WORK HORSES

We Guarantee our Machines to Deliver the Maximum in Precision Ground Knives per Hour with the Finest and Sharpest Edges for Longer and Better Cutting Action

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Capacity — 32" to 196"
Motors — 5 - 7½ - 10 - 15 HP
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Gears — Hardened
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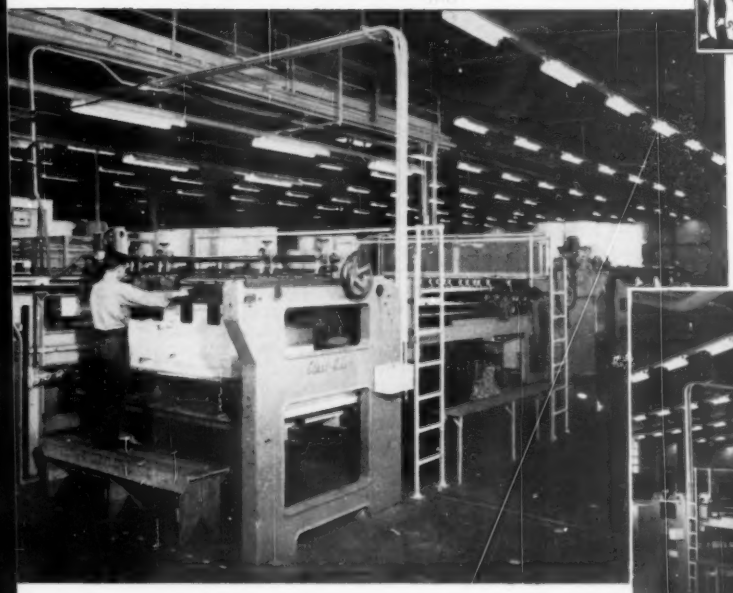

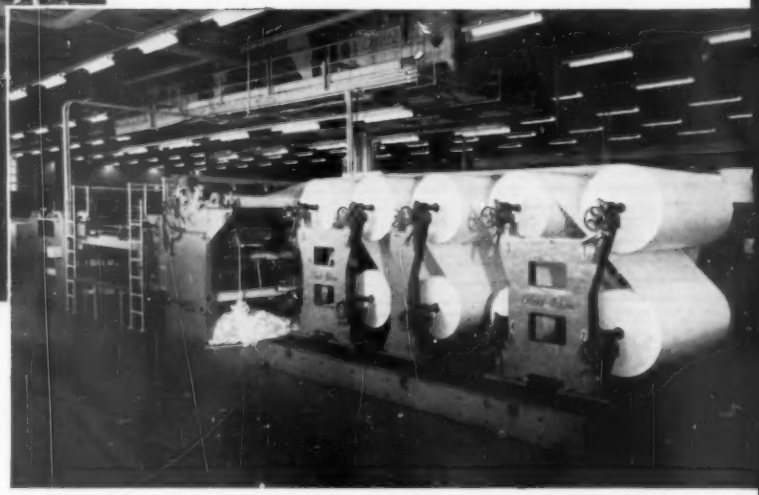

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Mr. Lawrence J. Zielinski, finishing operations supervisor and Mr. Walter Akstulewicz, sheeting department supervisor, Bergstrom Paper Company, Neenah, Wisconsin have this to say about their Clark-Aiken sheeters:

. . . "Our two Clark-Aiken sheeters operate at varying speeds providing efficient sheeting performance with a minimum amount of maintenance."

THE Clark-Aiken COMPANY

957 SPRINGFIELD ROAD

LEE, MASSACHUSETTS

Canadian Representative: Gordon W. Keates, 133 Flora Drive, Scarborough, Ontario

1960 has been a year of significant technical gain and measurable improvement in overall incoming business volume. In technology, a selective concentration of our development effort has begun to show results. Some of these new units and processes currently being marketed are mentioned below. Others, several of which show considerable commercial as well as technical promise, are nearing fruition and should be available during 1961. Progress in basic product standardization and redesign has also played a significant part in our technical advance and will have a substantial effect on our ability to serve our customers.

Virtually every segment of our worldwide operations has contributed to the increased volume of new business with an unusual degree of activity on exceptionally large projects apparent in many areas of the world. This overall gain has been reflected in somewhat higher billings and profits but a substantial increase in backlog has been the primary result.

METALLURGICAL—During the past year, the first installation of the new Dorr-Oliver DSM Heavy Media System went into operation on iron ore beneficiation in Minnesota. This process utilizes a DorrClone unit as the heavy media separatory vessel and other newly developed D-O units in the media cleaning circuit. As compared with conventional practice the new system provides better media cleaning, improved recovery and grade of ore and sharply reduces magnetite losses.

Included in the flowsheet is the D-O SiphonSizer, a hydraulic classifier operating on the hindered settling principle. In limited use for several years, this unit is now being applied in the metallurgical and non-metallics fields on both a commercial and experimental basis where sharper classification is of benefit.

For water conservation, one of the largest center pier Dorr Thickeners to be built in recent years is soon to go into operation for a major copper producer. Overall diameter of this unit is 375 feet.

NON-METALLICS—The continued installation of varied D-O equipment in wet process cement plants throughout the world has reflected the expansion of this industry, particularly in South America. It is interesting to note that in this latter area several Dorr Slurry Mixers in the 100 foot dia. range are being installed. These are among the largest ever fabricated.

A new development of significance in the cement industry was the introduction of the 270° DSM Screen —a unit which has increased grinding mill capacity when used for closed-circuiting or scalping. Considerable operating experience is available from several installations in Australia and Europe.

Substantial flowsheet improvement in phosphate rock beneficiation and coal washing has resulted from the application of sharper classification in Dorrco Hydroscillators and Sizers. The Oliver Horizontal Filter and the Dorrco FluoSolids System have been successfully operated in combination.

FOOD & PHARMACEUTICAL—In food and pharmaceutical industries, highly efficient separations coupled with economies in operating costs and space continue to attract processors to Dorr-Oliver centrifugal equipment. In the starch industry, for example, Merco Centrifuges, Mercone Screening Centrifuges and DorrClone Systems were selected in various combinations for expansions, modernizations and new plant facilities in Argentina, Mexico, the Philippines, South Africa, Uruguay and the United States.

Food processors also discovered the advantages of the DSM Screen and began to apply them to various dewatering jobs, such as germ separation, fibre washing and pulp removal from waste process waters. A new rotary vacuum filter of plastic construction, with interesting cost savings over stainless steel, performed well on clarification of fruit juices. Small diameter DorrClones in porcelain construction also solved speck and seed removal problems in various juice lines.

A leading manufacturer of new, high protein products for food and industrial use has utilized D-O equipment and services in developing new, continuous processes.

CHEMICAL—The versatile Oliver Horizontal Filter was applied to the washing and dewatering of a number of granular chemical products. A major breakthrough in the thermal drying of nitrocellulose by a special design of the Oliver Horizontal Filter resulted in substantial reduction in operating costs with a significant advance in safety. A multiple and repeat installation

of Horizontal Filters for phosphoric acid production was ordered late in 1960 from a major producer.

The newer unit operation of centrifugation continued to prove its potential in the field. Typical examples of its application are the successful use of Mercone and DorrClone units for carbon removal from paraffin oil and of a Merco Centrifuge for the removal of impurities from phosphorus.

PETROLEUM & PETROCHEMICALS—A new development of importance during 1960 was the application of the Mercone Centrifuge to the removal of liquids from polymer crumbs. One of the most exciting developments was the success of a special 'clamshell' DorrClone for catalyst removal from cat-cracker-fractionator bottoms. This solves a long standing refinery problem and should have wide application.

The Synrub filter is still an accepted standard in the processing of synthetic rubber both in the United States and elsewhere in the world. As an example, South America's first synthetic rubber plant, which was built during the year in Brazil employed a multiple D-O Synrub filter installation.

In the field of petroleum production, a principal D-O activity continued to be the use of DorrClone desanding and degritting units in water injection and drill mud conditioning. These are also now being applied to degritting of crudes.

The high demand for paraxylene has been partially solved by the application of a Merco Centrifuge separating paraxylene from a xylene stream at —80° F. Higher recoveries are achieved than ever before.

PULP & PAPER—The continuing increase in paper demand in every part of the world has resulted in the sale of brownstock washing, recausticizing and pulp bleaching systems both in the United States and abroad. Filters, pumps and sedimentation equipment have also been in demand for both pulp processing and such accessory services as water and waste treatment.

A significant advance in pulp bleaching by chlorine dioxide, the D-O concentric bleaching tower was made available broadly to the industry this year. The first of these towers has completed a year of highly successful operation in Idaho; the second will be in operation early this year.

Close cooperation and attention resulted in the supply of substantially all equipment for additional brownstock washing and bleaching sections at the newest mill in the Northwest.

MUNICIPAL AND INDUSTRIAL WASTE TREATMENT—Interest was extremely high in activated sludge treatment and applicable new D-O developments continued to gain momentum. The D-O Aerator was applied to the treatment of combined strong domestic and industrial wastes in municipal plants. Late in the year, the D-O Inka Aerator was introduced. Developed in Sweden and widely used in Europe, it combines high oxygen absorption rates with low power requirements and can be used most effectively on low BOD waste.

Programs conducted in the field on Densludge thickening and digestion were reported in detail during the year. One major city expects to save $6,000,000 in its current plant construction program through the use of this technique. In another interesting application, the Sultzer Disintegrator has improved digester performance in one large municipal plant when used to grind the thickened sludge.

Successful demonstrations of the RSR Clarifier proved the efficiency of this new unit for separating high volatile return sludge from waste sludge. Also, the use of the SpiroVortex System for the activated sludge process was further exemplified by a new installation in California.

In the area of sewage sludge dewatering, Dorr-Oliver Plastic Filters proved successful at Westport, Conn., and Paw Paw, Mich., while new filters of conventional design were installed at Harrisburg, Penna., and Marshall, Miss.

WATER TREATMENT—An outstanding event of the year in water treatment was the completion of the five-year construction program at Philadelphia's ultra-modern 423 mgd Torresdale plant for which D-O supplied four Dorrco Flocculators, and four Dorr Squarex Clarifiers. Another outstanding municipal water treatment plant is under construction by the Metropolitan Water District of Southern California. This plant will incorporate sixteen Dorr Squarex Clarifiers.

In the area of recent developments, a new Dorrco PeriFilter System will shortly go into operation at a southern city to treat 4.0 million gallons a day, and successful pilot plant demonstrations of an improved lime sludge handling method were carried out in several mid western cities. An increasing number of DorrClone units for desanding well water are being installed to protect meters and valves in industrial and municipal water supply systems.

Worldwide activity in new industrial plant construction, particularly in the pulp and paper field, has resulted in much activity in the application of both Hydro-Treators and conventional pre-treatment units to industrial water treatment.

PROJECT ENGINEERING — Much of the activity in this sector of D-O operations was provided by the rapidly expanding fertilizer industry. This included plants for the beneficiation of phosphate rock and for the production of phosphoric acid, ammonium phosphate, triple superphosphate and complete granular fertilizers. Typical of this area of activity are two phosphoric acid plants now being designed by D-O in Florida on a turnkey basis. A plant of unusual interest is being designed to recover ilmenite from heavy, mineral bearing sands for the ultimate production of titanium. D-O engineering includes the processing equipment, all auxiliary facilities and structures.

Other engineering projects include beneficiation of iron and copper ores, recovery of copper scrap, and facilities in such diverse fields as the pulp and paper industry, nitrocellulose manufacture, and starch production. Geographically, projects are underway in Africa, Brazil, England, France, Germany, India, Ireland, Japan, Jordan, Mexico and Yugoslavia as well as the United States.

FLUOSOLIDS SYSTEMS—1960 was a year of unusual activity involving both new and thoroughly demonstrated applications of fluid techniques. Plants for drying fine coal and both the drying and calcination of varied metallic and non-metallic ores continue to be in demand and contributed substantially to overall volume.

In the realm of the new and unusual—an important plastics plant went into production during the year utilizing a Dorrco FluoSolids System to dry the product Other similar applications are in the development stage. Another unusual application involving the roasting of copper concentrates for partial removal of sulphur prior to smelting will go into operation early in 1961. Also in 1960 a major chemical manufacturer ordered a third FluoSolids Reactor for processing food additives.

Of particular interest is a 200 ton per day lime plant scheduled for completion in mid 1961 in Florida. It is being completely designed and engineered by D-O on a turnkey basis with FluoSolids Reactors utilized in both the key steps of limestone drying and calcination.

SUGAR—Two new D-O developments were introduced to the Cane Sugar industry during 1960.

The D-O Rapi-Floc System introduces a controlled flocculation step before filtering of cane mud on a modified Oliver-Campbell Filter. The second development involved the application of DSM Screens to juice screening, with improved clarification and filtration reported as a result.

Throughout the year there has been a continuing demand for RapiDorr Clarifiers, Oliver-Campbell Filters and other standard Dorr-Oliver equipment for both new and expanded cane sugar mills, with the Middle East, Far East, Africa and Latin America particularly active.

We have several challenges ahead. We must provide our customers with even greater technical competence and service. We must continue to improve our profit structure to provide the income we need for continued technical and corporate growth in the future. We must provide growth and stability by adding to our product lines and areas of activity.

Through the dedicated efforts of our staff around the world we have made substantial progress in these areas during the past year. I am confident that this progress will continue and accelerate in the months ahead.

L. R. BOLING
President

December 1, 1960

STRICTLY PERSONAL . . .

starts on p. 82 . . . service engineer at Milwaukee office. . . . **A. B. Christensen** becomes mgr. of the Central Services div., J. I. Case Co., Racine, Wis. He assumes responsibility for industrial, agricultural, utility and export services. . . . **Robert F. Daily**, legal counsel for A. E. Staley Mfg. Co., Decatur, Ill., has been named secretary of the firm. . . . **A. S. Blodget** Jr. is named vice pres. of Air Reduction Sales Co.'s Midwestern region. He succeeds D. D. Spoor, retired.—Don W. Zeigler.

South

Harris

Johnson

Thomas S. Harris has been appointed associate director-operations for cellulose and specialties technical div., Buckeye Cellulose Corp. He succeeds **Dr. Arthur F. Johnson,** who has been transferred to research and development division of Procter & Gamble.

Millard C. Teague, director of quality control, Allied Paper Corp., died suddenly on October 22 in North Carolina. Mr. Teague joined Allied in 1958, had been associated many years with Ecusta Paper Corp., Pisgah Forest, N.C.

The Southern Exposure—**Charles E. Adams,** asst. technical supt., St. Regis Paper Co.'s. Pensacola, Fla. pulp and paper mill, received the first Hedgepeth award for outstanding work in water and industrial waste treatment. . . . **John A. Reagan Jr.** is public relations manager, Sonoco Products Co., and **Donald D. Dunham** steps into new post of asst. advertising and public relations manager.—**William F. Diehl, Jr.**

Canada

Douglas W. Ambridge, pres. and gen. mgr., Abitibi Power & Paper Co., Toronto, has been elected chairman of the Canadian Council of the National Industrial Conference Board. The new vice pres. is **M. W. Mackenzie,** pres., Chemcell, Ltd., holding company for Columbia Cellulose Co. and Celgar, Ltd.

E. L. Neal, pres. and gen. mgr., Gaspesia Sulphite Co., Chandler, Que., has been chosen chairman of the 1961 executive council of the Technical Section, Canadian Pulp & Paper Assn. Other members of the council are **G. C. Brown,** vice pres. and gen. mgr., Price Bros & Co.; **E. T. Buchanan,** mgr., Laurentide Div., Consolidated Paper Corp.; **Dr. R. M. Dorland,** dir. of research, Abitibi Power & Paper Co.; **A. D. Hamilton,** mgr., Quebec North Shore Paper Co.

A. G. Tafel, former assistant gen. mill mgr., at La Tuque, Que., for Canadian International Paper Co., has been made manager of that mill. He was formerly with the company's mills at Gatineau, Dalhousie and Three Rivers. **Maurice Pilon,** formerly gen. supt., succeeds Mr. Tafel in the latter's previous post and is in turn succeeded by **L. H. Wittenberg.**

Gilham

Hagar

Bailey

New appointments at Crabtree Mills div., Westminster Paper Co. have been announced by **John Ashby,** exec. vice pres. **J. S. Gilham** is manager of tech. services, fine papers; **C. N. Hagar** is plant manager; **Max Bailey** is asst. plant mgr.

Serving with Mr. Bailey are **Omer Laurin,** paper mill supt.; **Leopold LaSalle,** converting supt.; **Fred Mallette,** finishing supt.; **Yvon Laurin,** internal traffic supervisor; **Gilles Francoeur,** asst. plant engr., responsible for plant maintenance.—Charles L. Shaw.

Clyde S. Reynolds is president, Thurso Pulp & Paper Co. After various executive positions with Singer Mfg. Co., Mr. Reynolds transferred to Thurso, has been vice pres. and gen. mgr. since 1958.

Fred B. Richards is controller of Fraser Cos., Associates; he has been with Fraser since 1933, in 1958 became asst. controller. He is pres. of New Brunswick Certified Public Accountants Assn.

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JENSSEN AUXILIARY PROCESS TOWERS
RECOVERY PLANTS—COOKING ACID
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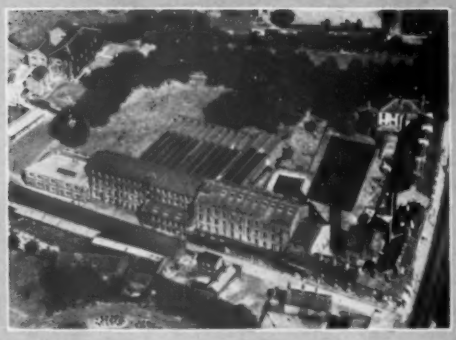

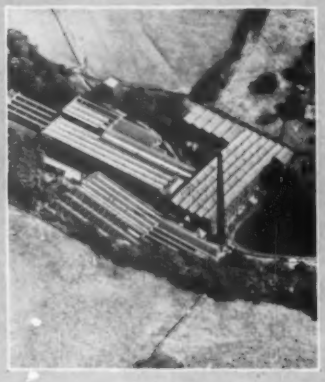

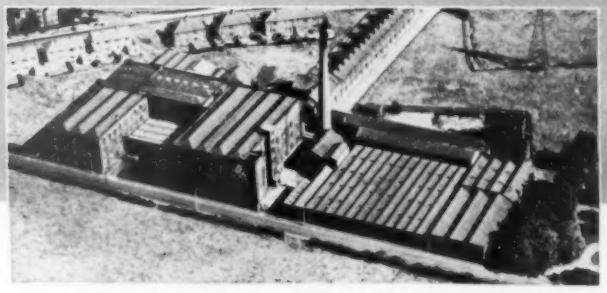

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These are the English and Canadian mills of the Porritts & Spencer Group, the largest source of mechanical cloths in the world today. Waterbury felts are still produced in the mill at Skaneateles Falls, N. Y. as they have been for over half a century. Yet these English and Canadian mills are destined to be of great importance to you.

Why? Because Waterbury felts now benefit from the vast technical skills of the Porritts & Spencer group, with its 152 years of experience in every type of mill in every climate the world over. P & S laboratory facilities and P & S manufacturing techniques are being devoted now to the improvement of Waterbury's already high quality.

The benefits of this new association are apparent in the current production of Waterbury felts. Ask your Waterbury representative to tell you how they can play a vital part in keeping your quality *up* and your costs *down*.

THE WATERBURY FELT CO., INC. Skaneateles Falls, N.Y.

A Member of the PORRITTS & SPENCER Group

STRICTLY PERSONAL . . .

Pacific

John B. Fery is promoted to vice pres., Boise Cascade Corp. He joined firm as asst. to pres. in 1957, became gen. mgr. of paper division in 1959.

Promoted by Scott Paper Co. at Everett, Wash.—**Oliver Ronken** moves up from sulfite supt. to pulp mill production mgr., **Elmer Christopherson** becomes sulfite supt., and **Bernard M. Meyer** is appointed pulp mill shift supt., the position previously held by Mr. Christopherson; **Allen C. Hale**, project engr., transfers to staff engineering dept. at Chester; **Eugene B. Johnson**, paper mill engr. since 1956, transfers to Scott's Southern Div. to become expansion engr. at Mobile.

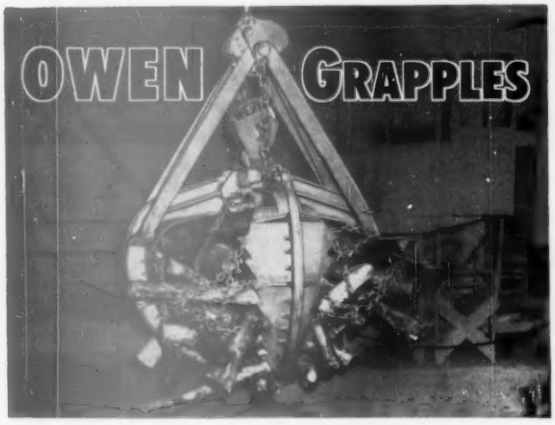
George C. Crosby, member of Weyerhaeuser Co. board of directors, was elected to the board's executive committee. He is board chmn. of S. T. McKnight Co., Minneapolis investment firm, director of First National Bank of Minneapolis and Farmers & Mechanics Savings Bank. This expands Weyerhaeuser's exec. com. to 6 members—**Chmn. Edmund Hayes**, Norton Clapp, **Chas. H. Ingram, John M. Musser, F. K. Weyerhaeuser**, and Mr. Crosby. . . . **Robert W. Boyd**, controller for Weyerhaeuser since 1948, became corporate secretary of the firm Jan. 1, succeeding **George S. Long Jr.** who retired. Mr. Boyd continues as controller of the firm, his title secretary-controller.

William O. Hall has been named chief engineer, C. A. Norgren Co.

Brandt Hansen Chapman Perrin

New officers of Waiting Room No. 7, International Brotherhood of Migratory Peddlers, were elected at a dinner meeting in San Francisco, which saw the group planning its activities for 1961. L to R—**A. C. Perrin**, Reliance Electric & Engineering Co., first vice-president; **C. H. Chapman**, Hercules Powder Co., second vice-president; **Harold Hansen**, General Chemical Div., Allied Chemical Corp., secretary; and **Walter Brandt**, General Aniline & Film Corp., president. **L. G. McLise**, The Dow Chemical Co., treasurer, was unable to be present.

As commanding officer of naval reserve submarine div. at Portland, **Ross T. Wither**, of Crown Zellerbach Central Research Dept., Camas, Wash., was participant in receiving the Fleet Admiral Chester W. Nimitz Trophy awarded to the unit as the nation's outstanding submarine division. . . . **Dr. Roswell P. Keyes**, a practicing physician, businessman and partner in Keyes Clinic, becomes a director of Puget Sound Pulp & Timber Co., Bellingham, Wash., as successor to the late **Dr. William C. Keyes**. . . . **Willard S. Fisher**, who was pres. of Accurate Corrugated Specialty Corp. and Arrow Board Co. when both of these Los Angeles firms were purchased early last year by Southwest Forest Industries, has been named vice pres. of the parent firm. In this capacity he heads up Southwest's container div.—L. H. Blackerby.



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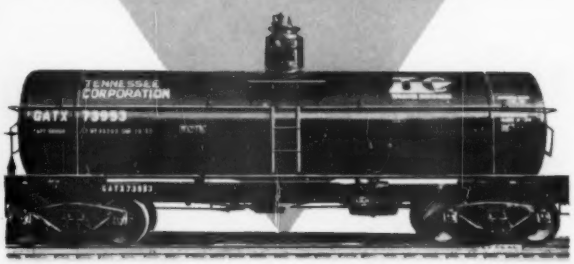

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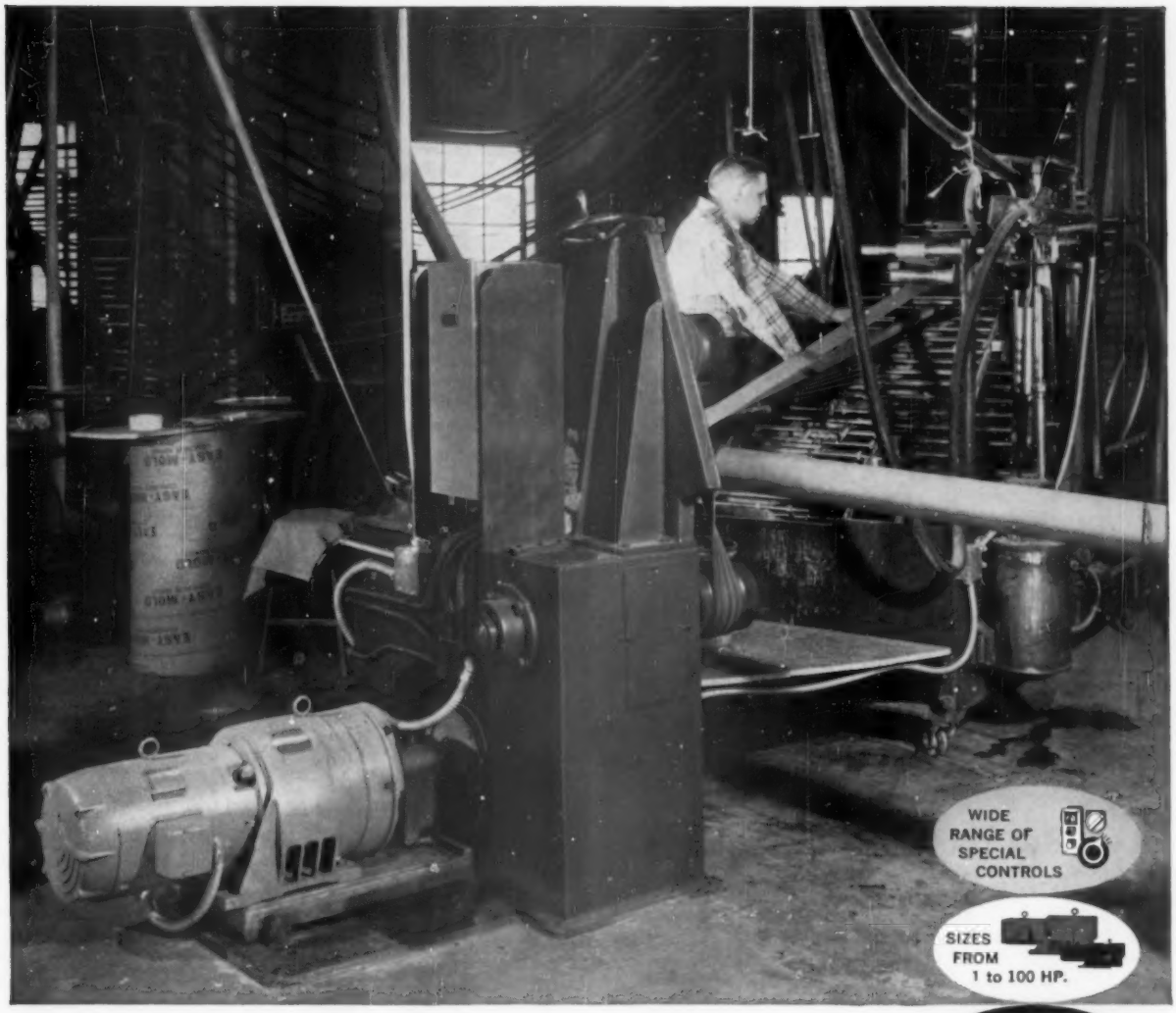

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Strong growth forecast

continued from page 27 . . .

Services Administration commented on this study in its quarterly industry report, "Pulp, Paper and Board," dated June 1960. It noted that such a forecast would require building 687 paper and board mills each with an annual capacity of 300,000 tons. The BDSA forecast that 400 such mills would be adequate, while the Forest Service study in its "Timber Resource Review," showed a need for more than 300 new mills.

Most of these other reports were not quite as optimistic as the RFF report. Their forecasts do not go to 2000, but the trends, as far as they do go, are not as steep as the RFF forecasts. The Paley report, for example, shows a total production of 45 million tons by 1975; TRR shows 51 million tons; while the Stanford report was in between these two at 46.6 million tons.

The more recent FAO report forecasts a total consumption of paper and paperboard in the U.S. in 1975 at about 62½ million tons. If imports, net of exports, are projected at 8½ million tons, this forecast implies a production of 54 million tons.

A strong growth pattern for the paper and paperboard industry and increases in per capita consumption are shown in all these forecasts. Although wide in range, basic techniques used are similar. All try to forecast some measure of total output of goods and services in the economy or some measure of the specific market for the production of the paper industry. Similarly, they all then try to forecast the relative importance of the industry in this economy. They then put the forecasts together and come up with a forecast of paper and paperboard requirements and, in some cases, output. From this, it is a short step to forecasting woodpulp and pulpwood requirements.

Probably the most complex technique is used by the FAO. Growth in paper requirements relative to growth of the total economy was forecast on the basis of normal growth curve. This takes into account relationship between rates of growth in use of paper and paperboard and stage of economic development of each nation. The BDSA report, which was limited to U.S. paper and paperboard and forecast only through 1965, relied on a correlation between paper and paperboard production and some measure of the major market for each specific grade analyzed.

These are all quite reasonable techniques and usually yield reasonable numerical results. Certainly, with the exception of the forecasts based on the RFF report, the results are not too dissimilar. But these are forecasts not only of a series of numbers, but of a pattern of economic and social life. The patterns implied by these forecasts are not always clearly spelled out. However, the forecasts in the TRR, the BSDA study or the FAO report on the 1959 Rome conference do not imply radically different use patterns or radically different patterns of total economic life than those now existing in the U.S.

Some 687 new pulp and paper mills would be required in the next 40 years according to implications of the RFF. What are some other implications? The basic trends forecast in RFF do not, at first glance, look particularly unreasonable. For example, population is forecast to grow at 1½% per year (all forecasts used here refer to the median forecasts presented).

This would mean that by the year 2000 the U. S. population would be about 330 million. Yet, the implications of this population forecast alone are staggering in terms of such factors as new homes to be built, new cities that must spring up, the tremendous expansion required in present cities and in what are now suburban areas and the huge increase in food and other goods necessary to supply this population even at today's standard of living. The problems of transportation, traffic and highways would suggest that a U.S. population of 330 million would have to rely on radically different types of transportation.

On top of this apparently modest increment in population, the RFF study projects a median 2.2% per year increase in the GNP per capita, in terms of constant dollars. This increase is certainly in line with the long-range trend in the growth of the standard of living and does not appear particularly strong. Nonetheless, this increase implies that per capita output of goods and services in 2000 will be something like $6,500; about 2¼ times the present per capita output.

A per capita income of $5,000 per year, or an income per family of four at about $20,000 per year, is implied if the current relationship between GNP and personal income is assumed to remain constant over the next 40 years. In other words, the average U.S. family in the year 2000, according to this apparent modest projection, would have about $20,000 per year in terms of 1959 prices.

The total economy, on this assumption, would produce in excess of $2 trillion in goods and services.

It is reasonable to suppose that products used by the average consumer at that time would have to be as different from current products as today's products are different from those used in 1920. The growth indicated in this forecast also implies greater changes in production and distribution than occurred over the last 40 years.

It suggests that products as new as television and frozen foods and distribution techniques as different as the supermarket from the corner grocery, may be expected over the next 40 years.

Where would paper fit? According to this forecast, the industry would produce 240 million tons of paper and paperboard per year. This would mean a per capita consumption of about 1500 lbs. At present, per capita paper consumption is about 435 lbs. and about 1/7 of our total supply is imported. The additional tonnage needed by this forecast might be used in distribution techniques that would require far more packaging than today. It might mean that paper and paperboard packaging materials had clearly demonstrated their superiority to any other type of packaging or shipping material or method.

Wide use of paper clothing for industrial and non-industrial use might also be implied. Also, that entirely new uses using large tonnages were developed.

So high a level of paper consumption suggests that books, magazines and newspapers would play an even more integral part in the social and economic structure of that day, than they do today.

Imaginative research and selling are required to further any growth in per capita trend in paper consumption. This can be achieved only through hard and disciplined work.

The paper industry must meet present and future competition head-on by continually demonstrating its superiority in many markets on both quality and price basis. In addition, new uses must be developed, not only to replace markets lost to other industries but also to maintain growth aspects so long shown by this industry.

The challenge of the future will be met successfully, but only by those leaders who are men of vision and courage. ■

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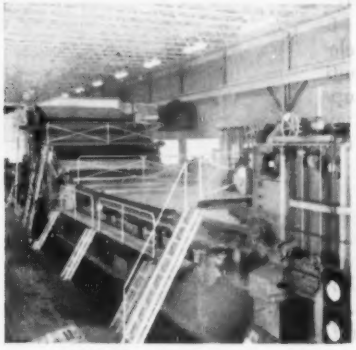

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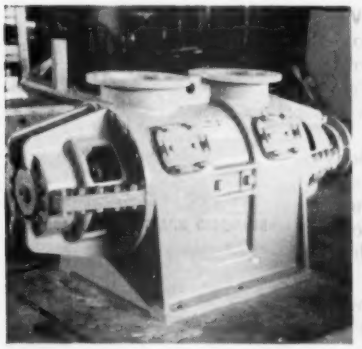

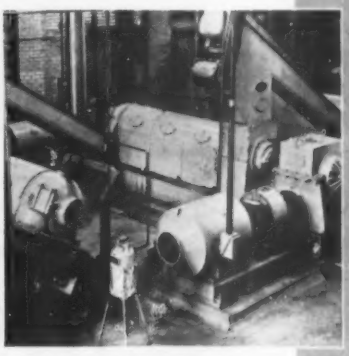

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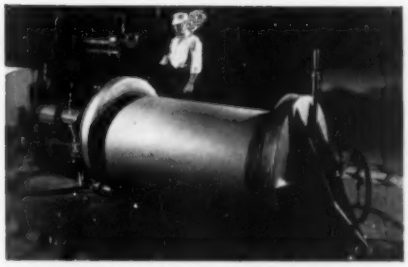

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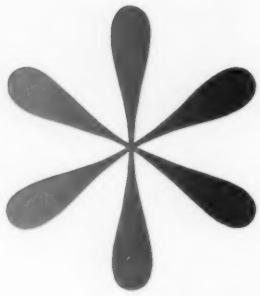

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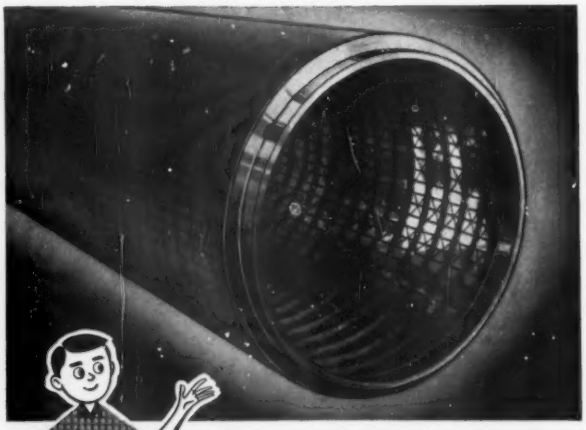

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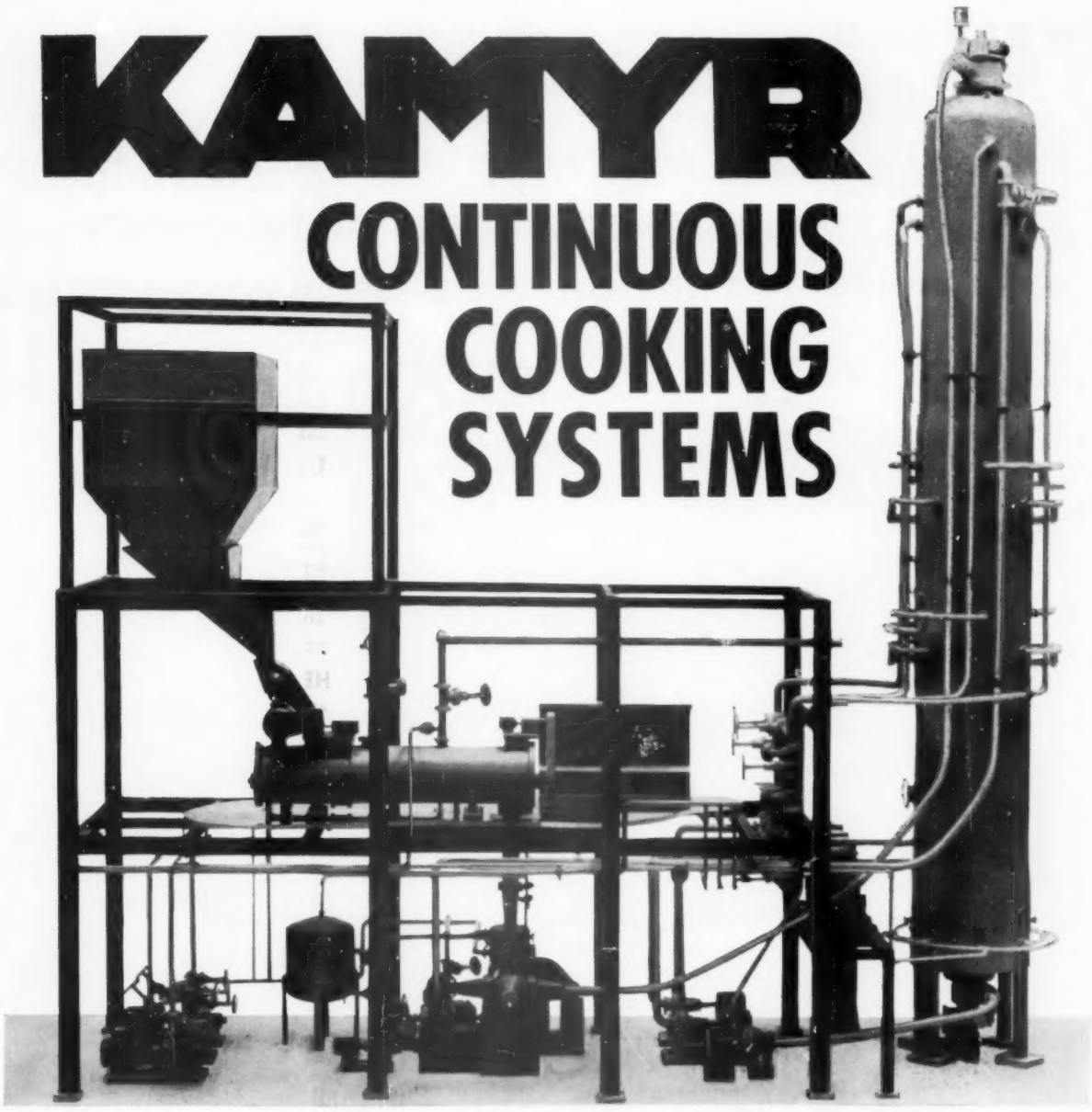

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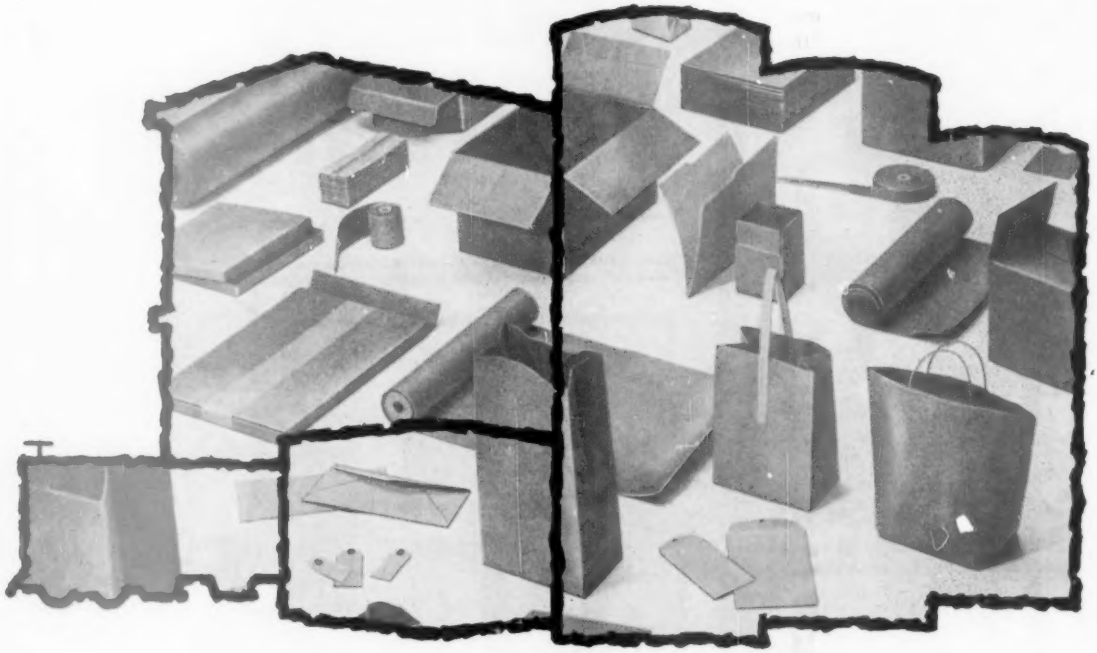

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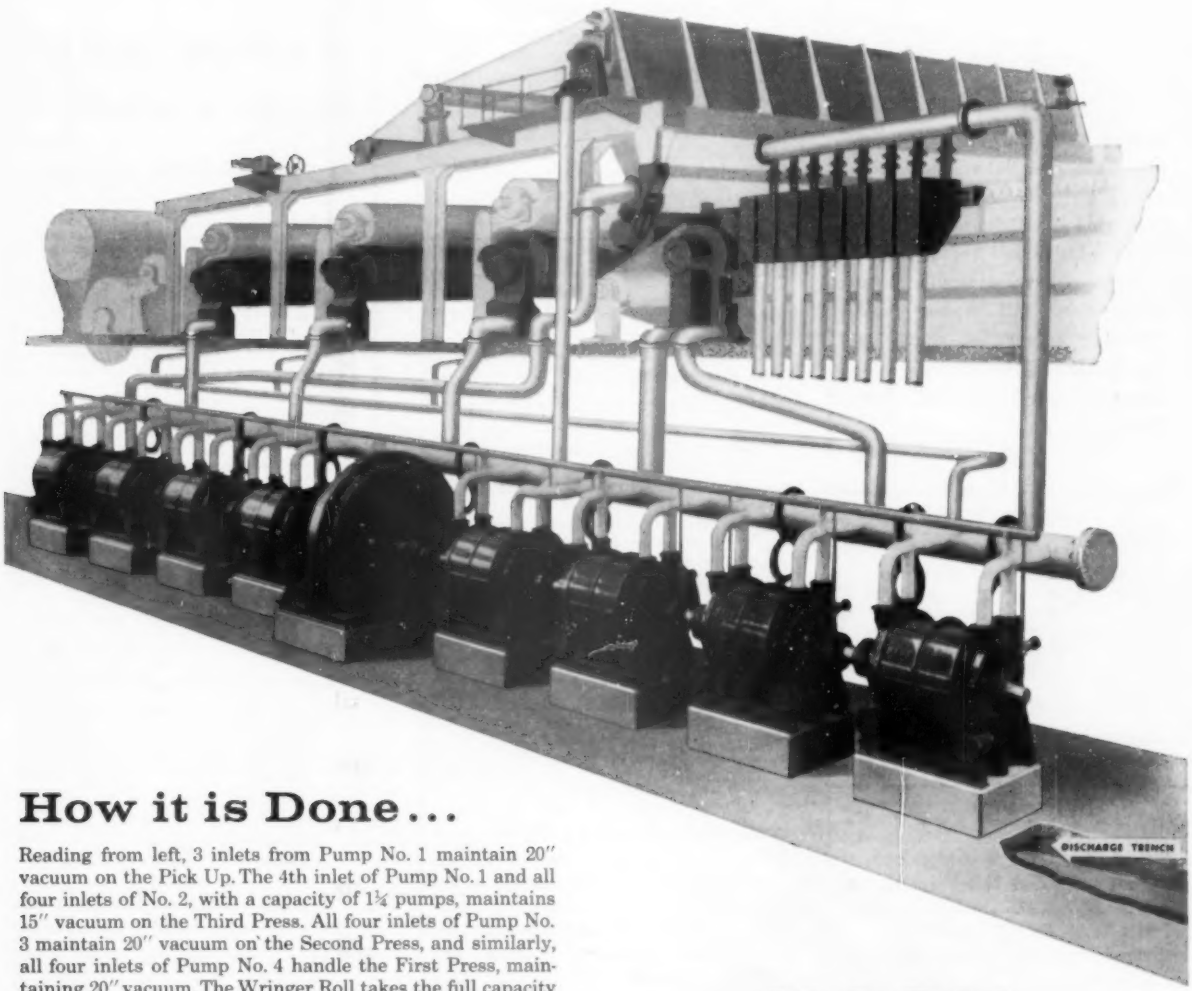

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The last word

Take a good look

The new compact PULP & PAPER is out and we sincerely hope you like what you see. This is what we had in mind last month when we told you about an exciting new dimension in business paper publishing in the pulp and paper industry. But this is only the beginning. As we become more adept at this new concept, we hope to bring you coverage such as you have never seen before in this industry.

Here's what we are doing
in the new PULP & PAPER. We're retaining all the good features which we have developed over the years with our in-depth penetrating mill stories and combining them with extensive news coverage.

The expanded wide-coverage news section will contain all news worth reporting, in interpretive form. This section will be easy to read, quick to grasp. There will be a new visual approach to our regular feature section which will include depth studies of economic and technical advances throughout the world. Graphic presentations will save you time, keep you abreast of events.

New use of photographs
by a capable team of editors who are as adept with camera as they are with pen and notebook. For instance, take the special report on Continental Can Co's. Augusta, Ga. mill in this issue. A PULP & PAPER two-man team filled three notebooks, used six cameras (two Leicas, one Hasselblad with special wide angle lens; one Exacta, Rolleiflex and Mamyaflex) took some 500 pictures and talked to every key man at the mill to get all the significant details on this new mill.

PULP & PAPER's unique staff of field editors, positioned in key manufacturing areas, combined their talents in this issue to produce the new compact PULP & PAPER. From Zurich, Switzerland, Editor Al Wilson wrote his on-the-spot, penetrating report on the world outlook for paper in 1961. Pacific Coast Editor Louis H. Blackerby, Midwest Editor Don Zeigler and Canadian Director Charles L. Shaw, channeled late news and merger reports, plus some contributions to the special report on Outlook, '61.

On special assignment, Southern Editor Bill Diehl teamed up with Eastern Editor Maury Castagne and Production Manager Stephanie Pollitzer to put the "newborn baby to bed."

Take it easy

A few years ago, say about 1956 to 1958, this industry was expanding at what turned into an expansion race. There was considerable optimism. The nation's economy was booming. But there were some who saw an unhealthy comparison between what was going on and a similar period in the Twenties. They recalled what overexpansion did at that time, the disastrous price wars that almost broke the industry.

Some of these men had the courage to speak out. Some were scolded for their "pessimism." Fortunately, there were other wise leaders who heeded the warning, and it is now estimated that some 5 million tons of capacity were either cancelled or deferred.

As we have mentioned elsewhere in this issue, the paper and paperboard industry has slated more than 3 million tons of new capacity in the next three years. Yet, one industry leader estimates that it will be three years before demand and capacity are in balance.

We are not pessimists;
if anything, we are optimists. But we do remember that although there has been no growth in market pulp consumption in the U.S. in the past five or ten years, capacity has grown substantially. For two or three years now the situation has been such that one pulp observer said, "One shove could upset the whole applecart." Market pulps have been sold in some instances at prices about $25/ton below announced prices.

Overcapacity, too, hit the white paper segment in 1960 and as a result envelope and tablet grades saw some price reductions. All this, at a time, mind you, when costs were higher than ever and profits lower.

Happy New Year

to all of our readers. The publisher and editors of PULP & PAPER sincerely wish you a very happy and successful 1961. As always, and with renewed fervor, we will strive to bring you complete coverage of significant news and developments in the industry. ■

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